

The Mining Journal

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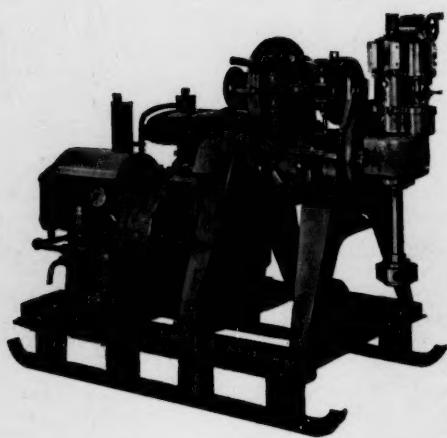
Railway & Commercial Gazette

Vol. CCXXXIX No. 6120

LONDON, DECEMBER 5, 1952

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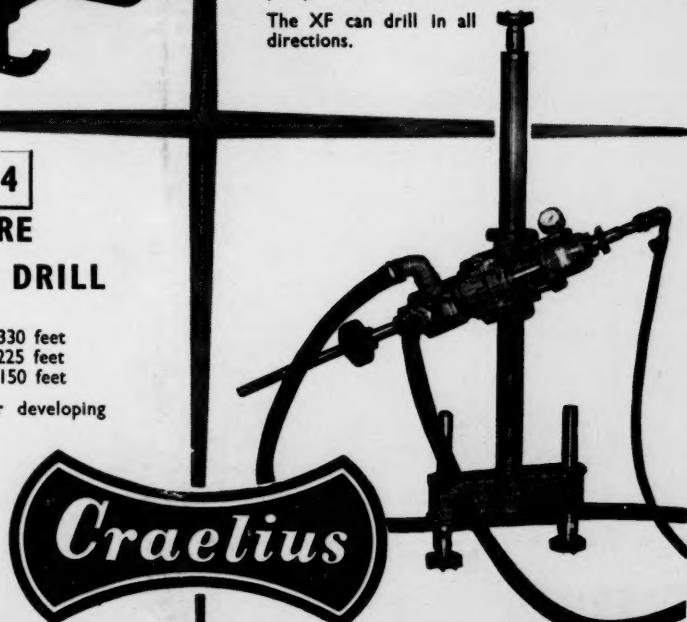
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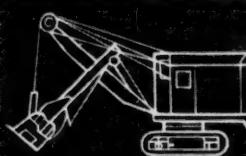
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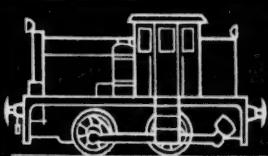
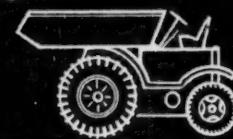
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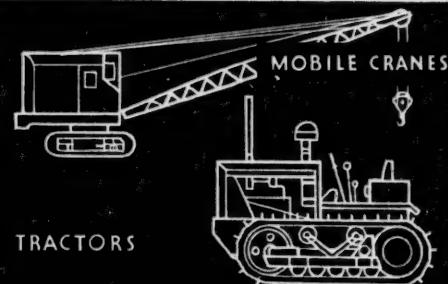
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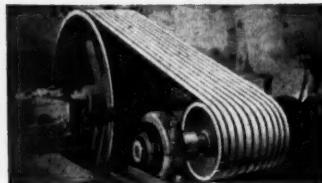
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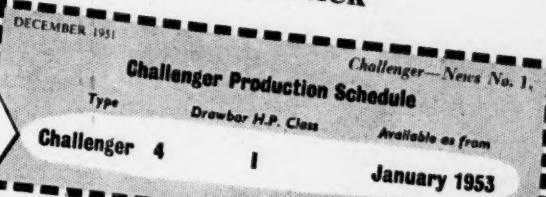
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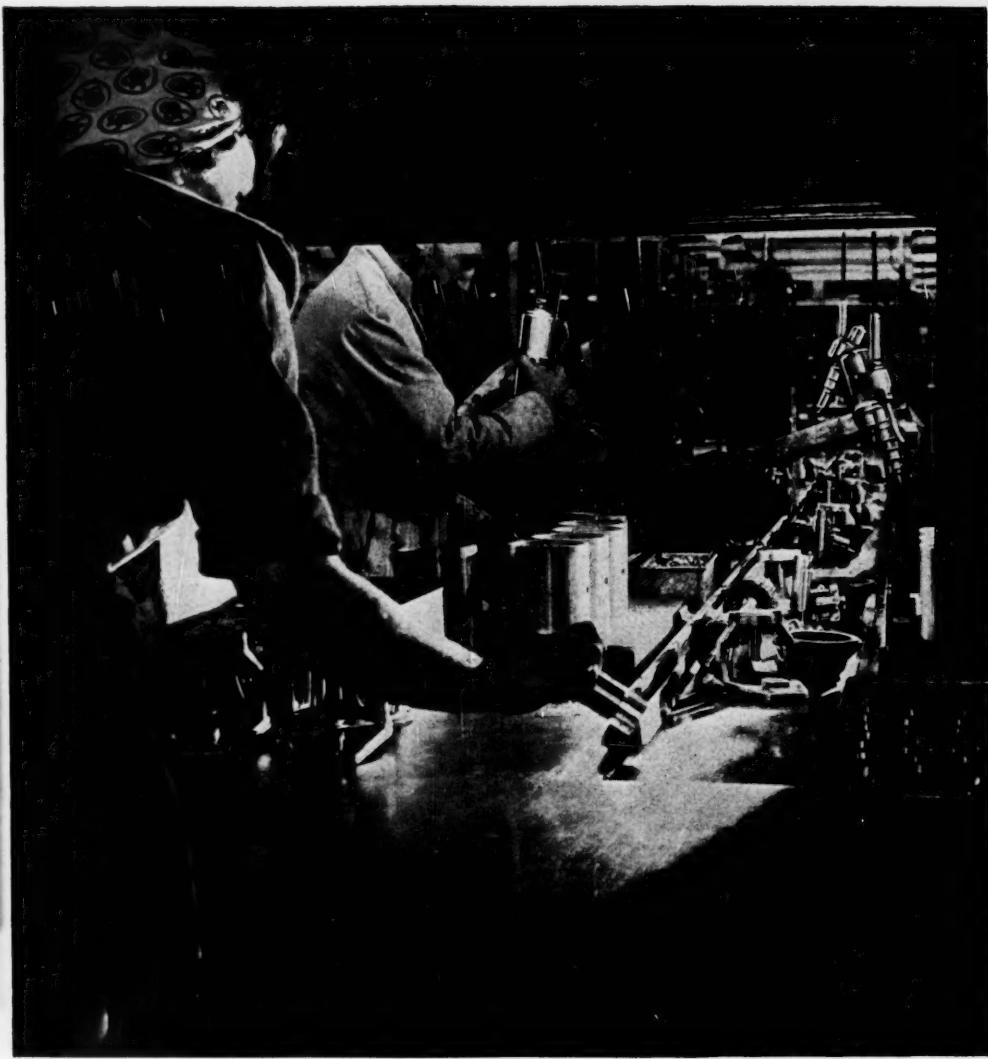
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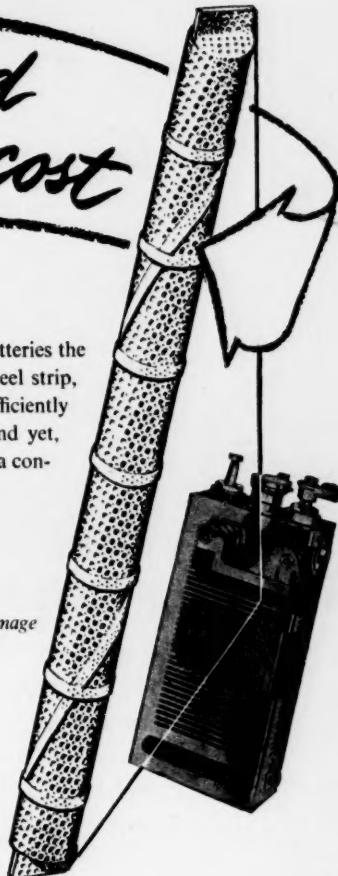
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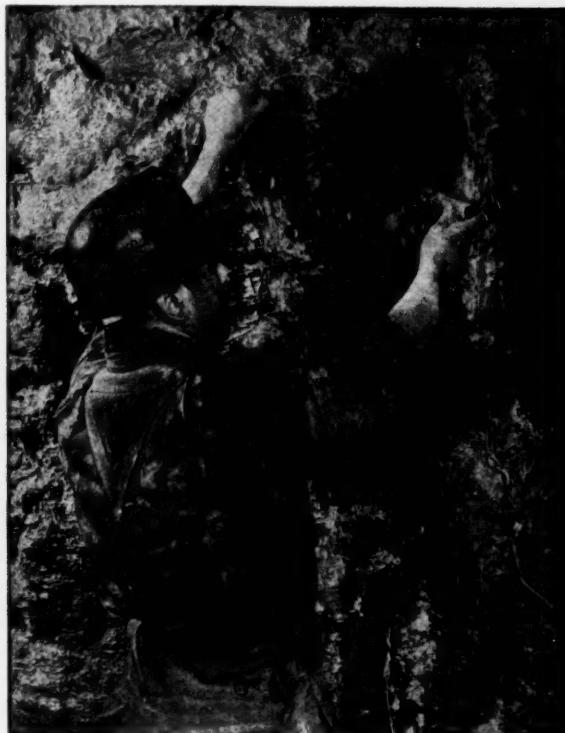
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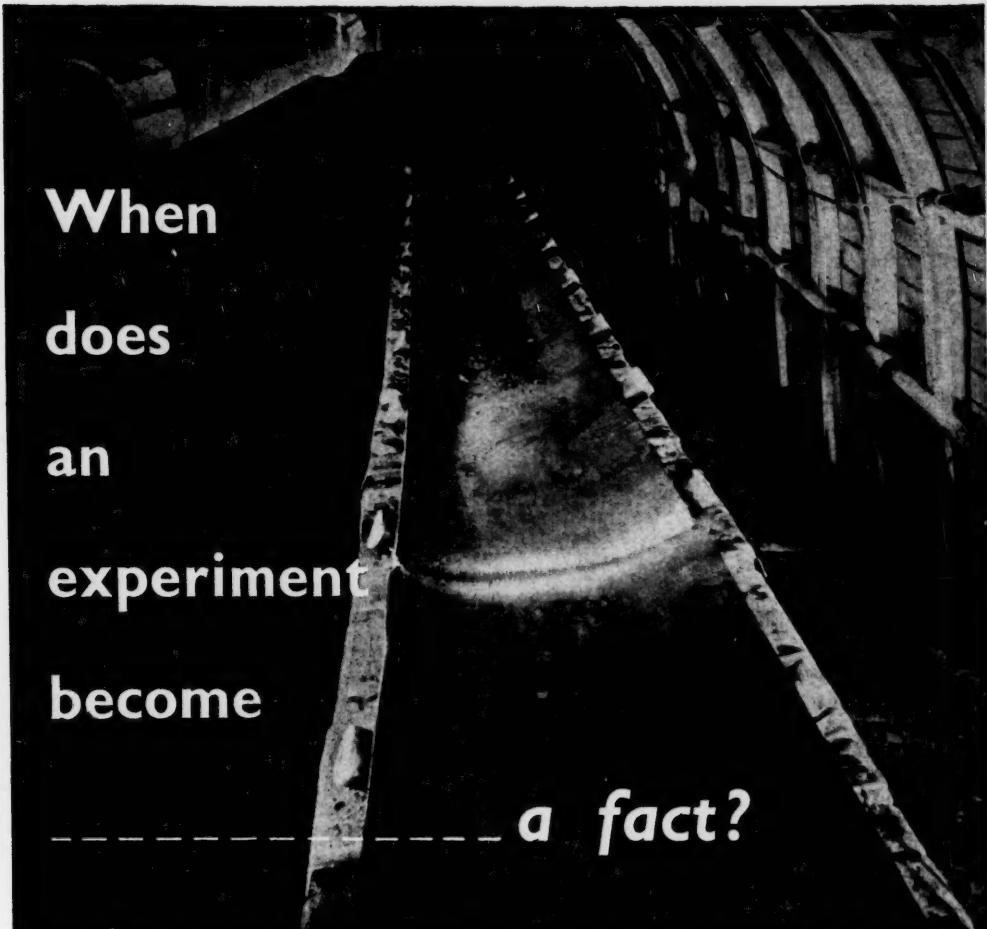
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The Mining Journal

Established 1835

Vol. CCXXXIX No. 6120

LONDON, DECEMBER 5, 1952

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NOTES AND COMMENTS

The Skeleton at the Feast

The Annual Dinner of the Royal School of Mines Association, held this year at the Tallow Chandlers' Hall, E.C.2, on November 27, is always a very happy occasion, and the Association itself provides a treasured link among men who, by reason of their work, are dispersed all over the world. This year's dinner, attended by some 90 members of the Association and their guests proved as enjoyable as ever, but it was also noteworthy for the expression by this year's president, Professor C. W. Dannatt, of the growing anxiety which has been felt in recent years regarding the persistently insufficient intake of graduate mining engineers into the industry.

As Professor Dannatt rightly pointed out, the economy of the modern industrialized country is to an increasing extent becoming a metal economy vitally dependent upon an efficient mining industry. The increasing demand for metals must result in the working of progressively lower grade deposits and in the operating of more and bigger mines, which in turn will require not only an increasing number of mining engineers, but mining engineers who have the technical competence to operate large scale low-grade properties. Moreover, the organized recruitment of prospective coal-mining engineers, which the National Coal Board so actively pursues nowadays, in itself tends to siphon off a number of young men who might otherwise be attracted to metal mining.

To these important long-term problems so rightly stressed by the President we would add our own comment that, quite apart from being able to meet the needs of a probably expanding mining industry, it is extremely doubtful whether the existing output of mining graduates is even enough to make good the normal wastage in the industry through retirement and other causes.

The rate at which this intake situation appears to be deteriorating has been causing us considerable alarm and on another page will be found an article based on enquiries recently made by *The Mining Journal* which makes an attempt to assess the present position and to suggest a method of dealing with it.

The Steel Industry—Criterion For Ownership

Mr. S. G. L. Hardie, who was the first chairman of the Iron & Steel Corporation set up under the Act of 1949 and resigned office almost exactly one year after vesting date, has re-entered the lists of controversy as a vigorous supporter of national ownership of Transport, Coal, Gas, Electricity, and Iron & Steel. Whether his brief experience in the seat of authority was a sufficient qualification for the final pronouncement of a judgment delivered *ex cathedra*, may be disputed, but his conclusions merit examination at this juncture when Parliament is being asked to consider a new scheme to link the initiatives of private enterprise with some form of public control of the iron and steel industry.

Mr. Hardie speaks of "the complex problems of organization and control which nationalization does not appear to have solved," but he insists nevertheless that "there can be no possible justification" for returning these five basic industries to private ownership. He affirms that in both Steel and Transport, "capital requirements for development and expansion are so great that only a national corporation can carry them out, but he ignores the fact that the steel industry has already financed and nearly completed a £250,000,000 post-war development scheme and is preparing a further plan for the expansion of productive capacity and the advancement of technical efficiency at an estimated cost of £300,000,000.

The need for rationalization of the steel industry is not in dispute. Mr. Hardie is preaching to the converted when he says that "If the industry is to continue in so many small units they cannot operate with the maximum degree of efficiency nor can their production costs be competitive with the Continent or with the large producers in America." The ultimate emergence of larger schemes of integration and the concentration of capacity in larger units is a clearly defined objective which will be pursued under either private or public ownership. Moreover, the new Iron & Steel Bill now before Parliament explicitly provides for the intervention of the proposed Iron & Steel Board in the development and control of essential raw

materials which Mr. Hardie submits as one of the primary purposes of his long term programme.

He concludes that "these plans can only be carried out as a co-ordinated national programme," but that does not necessarily connote national ownership. In short the question of public or private ownership becomes less and less one to be decided by reference to political doctrine, and more and more one to be decided by purely technical, financial and economic considerations.

Malaya's Potential Reserves of Tin

The Malaya Tin Bureau's *Tin News*, published in Washington, in its November issue quotes Mr. F. Stuart Miller, Vice-President of the Pacific Tin Consolidated Corporation, on the foreseeable future of Malaya's tin deposits.

Mr. Miller is reported as saying that from a geological standpoint no end to the tin resources of Malaya is yet in sight, even though the cream of the known deposits has been mined. The principal problem on the long view is not the remaining reserves already held on the mining lease but rather the possible extent of unmeasured tin resources which may be developed. Possible future sources of output he groups as follows:

1. Malayan reservations, forest reserves, river reserves, agricultural land and other holdings on which the Government has been reluctant hitherto to grant mining leases.
2. Tin bearing ground on rubber estates which can eventually be obtained for mining.
3. Large areas of swamp along the reaches of the Kinta and Perak rivers. Some such ground has already been parcelled out among the larger mining companies for testing but there has been no opportunity for extensive prospecting so far.
4. Low grade ground in or adjacent to present mining areas hitherto undeveloped because uneconomic at then existing tin prices.
5. Possible large low grade areas in the swamps along the Malayan west coast.
6. Possible off-shore deposits at some points on this coast.
7. New lode deposits which may be developed in the granite areas and along the contact zones as the jungle country on both sides of the Main Range is progressively explored. Low grade disseminated deposits of tin similar to the Manono deposit in the Belgian Congo are a possibility.
8. Reworking of mined areas by means of dredges capable of working to greater depth and better equipped for the recovery of fine tin and for dealing with sticky clay.

He concludes that "It is reasonable to expect that additional tin deposits can be developed in Malaya to maintain production at the present rate for many years beyond the estimated limit of known reserves. What is essential is that prospecting and mining in outlying areas be resumed at an early date."

Uranium Discovery in Southern Rhodesia

Up to the present the existence of workable deposits of uranium in Southern Rhodesia has yet to be established, although uranium was found last year over an extensive area near Breit Bridge. It is therefore of particular interest to read in a report emanating from the Office of the High Commissioner for Southern Rhodesia that uranium has been discovered in the Enterprise district about ten miles from Salisbury. While the discovery is not of great significance, because of its small uranium content, it has

raised the hopes of geologists and prospectors that workable deposits will be found elsewhere in the Colony.

The discovery was made quite by accident by Mr. Barnes Pope while he was looking for tantalum ore in the form of microlite on his peggings and an analyst's report said that the ore contained 77 per cent tantalum oxide, 6 per cent columbite, 2 per cent uranium oxide and 1 per cent thorium.

Whether Mr. Pope's peggings will prove to be of importance or not will soon be made known as a mining company is currently negotiating with a view to starting work on these claims.

Uganda Mining

The Protectorate of Uganda, if not a large producer of minerals, to-day has prospects of a very considerable expansion in the mining field. Exports last year were valued at £301,878 as compared with £227,094 in 1950. The increase was more than accounted for by the increased shipments of wolfram; other materials, none of major importance, showed slight declines. Generally speaking the mineralized areas are in the Western Province bordering on the Belgian Congo and Tanganyika.

The output of wolfram was 160½ tons, a gain of 11½ per cent. All last year's production came from the Kigezi district where large deposits of wolfram have been partially opened up by Bjordals' Mines Ltd. (Nyamulilo) which last year produced 63½ tons; Kirwa wolfram mines (37½ tons); and Luhiza mines (9 tons). All these mines are described as low grade large tonnage propositions, awaiting plant which has been much delayed in delivery to improve their output. Other potentially good producers are said to be Bahati wolfram mine (output 26.6 tons) and Mpororo mine but these require much more work before their capacity can be ascertained. The necessity of constructing roads has restricted the amount of labour available.

Cassiterite was the only other mineral of which exports reached any appreciable size. The output for the year was 164 tons of concentrates, containing 117 tons of metal, compared with 191 tons in the previous year. The principal producer was the Kagera Mines Ltd., in the Ankole district. Costs and an acute shortage of labour partly offset the higher market prices for the metal.

There are a number of minerals worked on a minute scale which, however, offer considerable prospects of mining in the Protectorate, including tantalum-niobium, bismuth, lead, beryl, mica, and amblygonite. Gold production, however, continues to decline, amounting to 224 oz. only last year.

The prospect of major interest to-day, however, is the Kilembe Mines situated in the foothills of the Ruwenzori Mountains. The company has a capital of £1,250,000 £1 shares, of which 525,000 are issued and fully paid and held by the Kilembe Copper Ltd., controlled in its turn by the Frobisher and Rio Tinto companies. Previous owners put in some dozen adits and did a lot of underground development work. The present owners have reopened many of the old workings and to-day at least seven ore deposits are known. Approximately 15,000,000 tons of ore averaging slightly over 2 per cent copper and 0.16 per cent cobalt are said to be indicated. Towards the end of the year exploratory work was stopped after 14,656 ft. of underground development had been done. Since then operations have been mainly directed to getting the mine ready for production. Main haulages have been started on both the eastern and northern deposits, mill and smelter sites chosen and a pilot plant of a five-ton-a-day capacity producing a 30 per cent flotation copper concentrate installed. It is hoped to have a small pilot roaster in operation next year, and that regular production may start

about new year 1955. The Sierra Leone Development Co., operating the iron ore deposits at Marampa in that colony, has taken up the Kitaka galena prospect near Ibanda on the Ankole-Toro border. They carried on systematic soil sampling, assisted by government geologists employing magnetometric and electrical methods. Towards the end of the year a compressor was installed and underground driving on the strike of the ore body commenced.

There are also prospects of some production of bismuth. The Rwenzulu bismuth mine is the largest deposit and a considerable amount of development has already been done on a persistent vein of limonite in which the bismuth occurs as a carbonate. Last year's production of 4.46 tons came entirely from development and until the mill is installed and mining methods modernized, increased production seems unlikely.

A number of new titles to mine columbite were pegged and though production was doubled, the output was only 5.70 tons, mostly from Kassamoli Jamal's mine in southwest Ankole. Kagera continued development work on its locations at Kashozo and produced about 3,000 lb. of concentrates. Production of beryllium ceased during the year. Production of mica also fell off and only one miner remained at work. 2,207 tons of phosphates were produced from a deposit at Tororo and permits to ship a small quantity of amblygonite were granted.

The Uganda Mining Association was formed during the year which, it is hoped, will assist the miners in dealings with the government, as well as tendering advice. The number of natives employed in mining increased in almost all sections, though a serious shortage was experienced in Kigezi and Ankole. The Kilembe Mines employed an average of 1,227 natives. There were also 124 Europeans and 14 Asiatics.

Canada

(From Our Own Correspondent)

Vancouver, Nov. 20

The trans-mountain pipeline from Edmonton, Alberta, to Vancouver in British Columbia is being constructed in record time. The outlook is that the 800-mile line will be completed by next August at a cost of around \$85,000,000. The line is designed to carry 120,000 bbl. of crude per day from the Alberta oilfields to the refineries in Vancouver. Already the construction crews have crossed the most rugged 150 miles of the project through the Canadian Rockies, and are pushing the project vigorously through the less difficult terrain.

In the oilfields themselves, in the Province of Alberta alone, some 1,038 wells were drilled between January 1 and August 31, and resulted in 605 oil producers as well as 82 potential gas wells. There are now 3,320 wells in Alberta capable of oil production with a potential of 250,000 bbl. per day. Expenditures during the current year on oil exploration and development in Alberta will reach \$200,000,000. Meanwhile, also, the Canadian Chemical Co. is laying the foundation for a petro-chemical industry at the eastern outskirts of Edmonton where the company is erecting a plant at an estimated cost of \$55,000,000. The plant is expected to come into operation early in 1953, and is designed to convert 40,000,000 cu. ft. of gas daily into basic chemical and textile materials. Factories all across Canada will turn this output into thousands of products for commercial, industrial and domestic use. In late summer, 175 geophysical survey parties were at work in Western Canada, of which 122 were active in Alberta—the intensity of the search for oil in that province being on a scale seldom exceeded in the history of the world.

The province of British Columbia is also becoming involved to increasing extent in the developments associated with petroleum and gas. The Westcoast Transmission Co. is making a survey through the Rockies at Pine Pass in expectation that its application for a proposed \$100,000,000 gas pipeline will be approved at an early date. This is in addition to the \$85,000,000 oil pipeline across the Rockies by the Transmountain Oil Pipe Line Co. In Vancouver itself work has been started on oil refining facilities involving expenditure of \$35,000,000.

Exploration for gas and petroleum has spread to such extent as to involve four provinces, beginning in Manitoba on the east and extending through Saskatchewan, and Alberta, and on into part of British Columbia on the west. The great extent of the favourable area may be visualized by remembering that discoveries already made extend across more than 1,000 miles.

GOLD DEVELOPMENT

The election of Dwight D. Eisenhower to the presidency of the United States has introduced hope in the minds of gold producers that a more realistic attitude towards gold will soon develop at Washington. These hopes are based upon pre-election statements credited to Mr. Eisenhower. The fact, too, that the Canadian Government itself has bought and stored \$265,000,000 in gold during the past year, is taken as a reflection of the great importance attached to production and possession of the precious metal. Such large gold mines as Kerr-Addison and others are proceeding with bold and extensive development programmes. Lamaque Gold Mines recently raised mill capacity to 2,000 tons per day.

East Malartic is developing new ore bodies which carry medium to high gold values across widths of more than 100 ft. Giant Yellowknife in the North-west Territories has increased milling rate to 700 tons per day. Kerr-Addison is already being rewarded with the discovery of higher grade ore at depth. At the lower level a diamond drill hole has been extended out across one of the main ore zones at 3,700 ft. in depth and has indicated a width of 50 ft. carrying 1.17 oz. gold per ton. Also, a diamond drill hole put out at the 3,550 ft. level has intersected a width of 43 ft. carrying 0.85 oz. gold per ton. This points toward a large increase in ore reserves which are already developed many years ahead of the current milling rate of 4,400 tons per day. Civic authorities from nearly every important community in the gold producing areas of Canada have banded together to make a general plea at Ottawa for more realistic consideration of the welfare of gold mines. There is growing opinion that if the government of this country intends to restrict the price of gold to \$35 in American funds it should grant to the producers of the metal the freedom to dispose of the metal when and where they please.

Hoyle Mining Co. is making good progress in the development of its Ontario Pyrite property at Sudbury. Ore widths of 40 to 80 ft. have been disclosed and the enterprise promises to develop into a large tonnage producer of ore containing lead, copper, and zinc. Meanwhile, the Opemiska copper-gold mine, which is also controlled by Hoyle Mining Co., is being extensively developed in the Chibougamau district of Northern Quebec in preparation for mill construction.

Noranda Mines has entered into an agreement to finance Macdonald Mines in north-western Quebec for the construction of a mill with a minimum capacity of 1,500 tons per day. The deal will include incorporation of part of the Macdonald property into a new company in which Macdonald will retain a 49 per cent interest.

The Supply of Mining Graduates

Is the British overseas mining industry recruiting a sufficient number of graduate mining engineers to maintain the required establishment of technical staff on its mines? This is a problem which, for some years, has been perturbing academic circles which, in the nature of the problem, are likely to be made aware of it earlier than the mines themselves where the impact of an inadequate intake must take a number of years to make itself felt in the practical terms of finding the right man for the job. Nevertheless, the situation is now reaching a point where some mining companies are becoming alarmed at a trend which threatens rapid deterioration in the next five to ten years if effective action is not taken quickly to reverse it.

Lest it may be thought that the failure to fill existing University places is because the jobs are not available, it may be of interest to report that *The Mining Journal* estimates that in the case of the Royal School of Mines (after allowance for National Coal Board scholars, graduates who will take up posts with Canadian or foreign companies, and the small proportion which normally fall by the wayside), the entire B.O.M.A. membership will be fortunate if it has more than five R.S.M. mining graduates from this year's intake wanting jobs for them in 1955.

ARE THE JOBS BEING FILLED?

This is possibly a quite exceptional instance but it is worth citing both as illustrative of a trend which appears to be afflicting mining colleges throughout the world (making it unlikely that British mining companies can rely on Dominion or foreign trade engineers to replace our own diminishing output) and also as a specific example of the delayed impact which this kind of deterioration has on the industry itself.

Stating the problem another way, we would say—on an admittedly snap judgment—that British overseas mining companies could, over the next few years absorb at least a hundred mining graduates annually from British universities and technical colleges, whereas it is doubtful if they are at present getting half this number, and if the experience of the R.S.M. is any guide, they look like getting less.

The experience of the National Coal Board also appears relevant to this issue. Here we find that while the N.C.B. is offering 100 university scholarships annually (50 to school leavers, 50 to industry) only about two-thirds of them were taken up last year. And these scholarships are generous enough by any standard, ranging from £250 to £300 a year, plus fees.

It is perhaps unnecessary to point out the inevitable time-lag which must occur before the industry can feel the benefits of any action which may be taken, as allowing for military service, there may be anything up to five or six years between the time when a sixth form school boy decides to train as a mining engineer, and the time when he takes up his first job. Similarly, the impact of any deficiencies in the current intake of students is not going to be felt fully by the mining companies for some years. It is precisely the delayed action of this problem which makes it particularly necessary for the industry to be made aware of the threat before the full impact of it is felt.

Action on this matter would seem to fall under three heads. *One*, the institution of a fact-finding enquiry into the present state of the industry's technical man-power,

leading to a forecast of requirements over, say, the next ten years. *Two*, provision of the necessary number of places in universities and technical colleges—if they are at present inadequate to meet these requirements. *Three*, if a manpower shortage is indeed found to exist, an intensive and sustained recruitment drive on whatever scale is shown to be necessary by the evidence of the enquiry.

FACT-FINDING

In the first place—the enquiry. Does the problem really exist outside of the minds of a few professors whose views on questions of university entrance might, to some, not appear entirely disinterested. *The Mining Journal* itself is in no doubt as to the reality of the problem but it is most necessary that its precise nature and extent should be authoritatively ascertained at the outset if the mining industry as a whole is to be aroused as to the need for action. Moreover, an authoritative enquiry is a necessary pre-requisite to the financing of any additional places which may be required for students, and also for determining the scale of any recruitment drive found to be necessary.

This preliminary enquiry can, of course, only be undertaken by the companies themselves as it is within their own organizations that the answer lies. Take the case of the X.Y.Z. Mining & Prospecting Co. registered in London and operating mines in several Continents or maybe just one mine in one Colony. What answer can this company give to such questions as: Is its establishment of technical staff up to full strength? If so, how long has this been so, if not, what has been its average deficiency over the last five years? What will its position be in five and again in ten years time? What additional staff will the company's projected development plans require? How many men will it have lost through normal retirement (*i.e.*, what is the age composition of its staff) and on past experience—what will be its loss through premature retirement, transference to other companies, and other wastage? Given the continuance of the average rate of intake during the past two years will this be enough to make good the prospective wastage, plus or minus the requirements of projected expansion or curtailment of operations?

And so on. Anyway, by now the Board of the X.Y.Z. Co. will either have got the point and settled down to doing some calculating or will be showing signs of restlessness and be preparing to ask this expected forecast its requirements five years ahead, let alone ten, when it does not even know how the metal market may be looking this time next year! Well, maybe so, but what about that new capital issue the board put through a while back to finance a further extension to the mill. Did it at the time know when American stockpiling would end? Does it know now? How, in short, does any company take any decision requiring a long term view?

It has long been a maxim of good management, that it is better to take a wrong decision than no decision at all, and this is eminently true in the matter of staff recruitment. Nevertheless, the London offices of more than one mining group are accustomed to receiving requisitions from their mines for newly graduated mining engineers (as well as at a lower level for official learners) for not more than a year ahead, or alternatively they have a blank cheque to get as many men as possible.

Estimates over so short a period or in such vague terms

are, of course, useless as a basis for planning the requirements of an industry in which there is a time lag of up to six years between school leaving and graduation, and it must be apparent that a long term forecast of the industry's requirements, built up on the kind of facts suggested above, is an essential prerequisite to any effective action. Moreover, such a survey implies some collective effort on the part of the industry which can only be effectively carried out through the British Overseas Mining Association or some other *ad hoc* committee.

FINDING THE PLACES

The survey will either show that there is no problem or will provide an approximate measure of its extent. In the latter case an authoritative statement of its requirements by the mining industry will be of the utmost assistance alike to universities and technical colleges in providing the facilities for those extra students for which places must be found.

Having regard to the scale on which Government funds are nowadays being made available for higher technical education, the financing of additional places for a particular category of technologists does not appear to present insuperable difficulties at the university level provided that authoritative evidence is available of the need.

However, it must here be emphasized that nothing practical can be attempted in the matter of extending educational facilities unless, and until, the need can be shown to exist. This is well illustrated in the case of the Royal School of Mines. There, the intake of new students has, in recent years, been below capacity and this autumn was at about 50 per cent of capacity. Consequently, in the case of London University, and possibly elsewhere, it will be necessary not only to show a need for more graduates but also tangible evidence that existing places will be filled, before funds for an expanded department can be reasonably considered.

In this connection it is notable that in dealing with the supply and demand of scientists and technologists, the Fifth Annual Report of the Advisory Council on Scientific Policy makes no reference to the situation in respect of mining engineers, although all other main categories of engineers are reviewed. Can this be because the metalliferous mining industry has not appraised the Lord President of the Council of the urgency of the problem, or is it perhaps that the National Coal Board, which is conducting its own recruitment campaign, has in Government circles been regarded as fully representative of "mining"?

RECRUITMENT

In the last analysis, everything turns on whether or not school leavers can be diverted into the industry in greater numbers. In essence the problem is one of presenting the attractions and the limitations of an overseas mining career, both to a boy of from 16-18 and his parents, in terms which will convey a realistic picture of the qualities which will be required for the job and of the physical and social conditions in which his life will be lived.

This is a task of very considerable difficulty in view of the remoteness of the realities of a miner's life from the personal experience of the average schoolboy and his parents, quite aside from the initial disadvantage which the industry suffers by virtue of the unattractive aspects, imagined or real, which are widely believed to be attached to a mining career and to life in many parts of the Empire where mining is carried on. Moreover, it will be necessary not only to make a sufficiently great and efficient effort both to outsell the other industries (including the N.C.B.),

competing for the boy's services and to offset the initial disadvantages from which mining may suffer in the public mind.

Two main questions arise in this connection. In the first place, where should the recruitment effort be concentrated and secondly, what form should it take?

WHERE ARE THE BOYS?

Regarding the first point, *The Mining Journal* is of the opinion that hitherto a disproportionate amount of attention has been paid to the leading public schools at the expense of exploring the possibilities of the infinitely larger number of minor public schools and grammar schools throughout the country, which in the aggregate must be producing year by year a large amount of promising raw material. Moreover, there is reason to think that in concentrating on the leading public schools the industry has been selling itself in the hardest market.

Boys leaving the leading public schools with a good academic record show a strong predilection for going to Oxford or Cambridge and those that do must, barring the isolated example, be regarded as lost to the industry, as it is most exceptional for science graduates from either of these universities to be prepared to spend a further period in qualifying as a mining engineer. The more athletic and extrovert types from these schools, who otherwise might be regarded as having many of the best innate qualities for a mining career, tend, in practice, to be attracted to a career in the Services, more particularly since financial incentives in this field have improved.

Further evidence suggesting that propaganda to the schools is being misdirected is to be found in the fact that nowadays half the mining intake at the R.S.M. comes from the grammar schools, whereas before the war entries from this source were negligible.

WHAT IS THE BEST APPROACH?

Again, with regard to the types of recruitment effort which have hitherto mainly been employed, it is doubtful whether these have been the ones best calculated to produce results. In the main, these appear to have taken the form on the one hand, of mass circularization of prospectuses to the schools, and on the other of direct approach to individual headmasters, on a somewhat piecemeal basis, alike by the various universities and colleges and by individual mining companies acting either direct or through such organizations as the Public Schools Advisory Board.

Both these methods suffer from the disadvantage that they are competing both with other university departments and other industries alike for the attention of the boy, and of the headmaster. In the case of the boy, there is every reason for thinking that the appeal of the printed prospectus, if it is read at all, will not be stimulating. In the case of the headmaster (or of the career's master) who, as a part time job, is attempting both to absorb the competing attractions of every career open to the secondary school boy (without, in all probability the background of any personal experience of the mining industry) and is also attempting to assess the individual capacities of his hundred or so boys of school leaving age, the arrival of one more prospectus or the personal appeal of one more mining company merely adds to the burden of his job.

Two conclusions suggest themselves from the foregoing. First that a more personal and imaginative approach must be developed in the appeal to the schoolboy. In this connection a number of people feel—in our view rightly—that the schoolboy will react much more sympathetically to a personal approach from individual mining engineers who

are themselves doing the sort of job which he is being invited to do, and can talk to them with the conviction and animation of personal experience. This kind of approach suggests the large scale organization of informal talks to schools supplemented, wherever possible, by films showing both the elements of mine operation—the cartoon may be useful here—and examples of the kind of physical and social conditions which surround the miner's life. In this latter connection, some of the films which have been made by the big mining companies in recent years should prove invaluable. Lecturers should be prepared for very small audiences and the whole approach should be as personal and conversational as possible.

It might also be worth while considering an approach to National Servicemen nearing the end of their time. This might very likely yield good dividends in attracting boys who have been out in the world and changed their outlook since leaving school.

NEED FOR A COLLECTIVE EFFORT

Secondly, it seems that the present piecemeal approach to the schools must be consolidated into a collective effort by the industry and those universities and technical colleges concerned, on the one hand to simplify the issue as far as possible in the minds both of the schoolmaster and the boy and, on the other to enable the present expenditure of effort and money to be more effectively applied, apart, of course, from whatever may be additionally required in this respect.

All this points to the establishment of some central recruitment bureau, financed by the industry as a whole and staffed by men with recent personal experience of the conditions in which the new entrant will be working. Perhaps the most effective and least costly method would be to appoint quite a small permanent office of two or three sales-minded men with practical mining experience and a good approach to boys and to supplement their efforts by the creation of a roster of lecturers supplied by the companies from among members of their staff home on leave.

Such men would be in the best possible position to appreciate the urgency for getting recruits, and—of equal importance—could speak with particular conviction to the schoolboy, who perhaps more than most of us is prepared to pay more attention to the man on the job than to some "brass hat" who may seem somewhat far removed from the realities of the life which he will himself be asked to lead. If each mining company could be persuaded to allow even a week's extension of home leave to suitable members of their staff, this should in the aggregate provide a sizeable reservoir of lecturers such as would permit the industry to present its case alike to the schoolboy and the National Service man on a scale not hitherto attempted. Even if the cost, direct and indirect, of this effort were to be of the order of £10,000 or £20,000, the cost per company would be small and of no significance whatever alongside the cost to the industry of an inadequate technical staff.

Naturally enough in proposing such a collective effort by the mining industry, the British Overseas Mining Association comes to mind as the obvious organization to handle a task of this nature, and it would be idle to pretend that this article has not been written with the Council of B.O.M.A. particularly in mind. At the same time if it were felt that this particular task were outside its proper scope, there is no reason why some *ad hoc* committee should not be appointed especially for the purpose. Either way the organizing body will presumably wish to co-opt representatives both of the universities and tech-

nical colleges and of the Ministry of Education and the Ministry of Labour.

Finally, and above all, it is to be hoped that in tackling this task the industry will not content itself with half measures if as a result of its initial survey, the situation proves to be as precarious as we believe it to be. However, at this stage we venture to do no more than assert that a *prima facie* case exists for examining the situation. If this in fact proves to be critical, the rest follows.

Potential New Markets for Rare Earths

Sizeable new markets for the relatively unused "rare earths" may develop in steel-making, as well as in the aviation, electronics, and atomic energy industries, according to Dr. Clyde Williams, director of the Battelle Memorial Institute, America.

The fourteen metals in the rare earths group now attracting increasing attention are: cerium, promethium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium. Four others, lanthanum, yttrium, sonnadium, and thorium, are frequently attached to the rare earth group because of their close relationship in the Periodic Table, in some minerals, and in some production properties.

Present use of the rare earths, as in the making of sparking flints for cigarette lighters, has been largely confined to misch metal—a mixed form of the metals. As compounds with other elements, they also are used to produce light of sun-like brilliance in motion picture projectors and searchlights, for colouring, polishing, and special optical effects in the glass industry, and for making capacitors in the electronics industry.

With the discovery of large domestic resources of these raw materials, Dr. Williams believes that they will be used more to do special jobs better than some other material is now doing, or is unable to accomplish. Moreover, improved methods of recovery will provide scientists with greater quantities of the individual rare earths and make it possible for them to study industrial applications more completely.

The biggest potential new market for the rare earths is stated to be in steel-making. Here, as with some other primary metals such as aluminium and magnesium, small doses of these raw materials can improve the quality of end products. It is said that the rare earths may, for example, improve resistance of the primary metal to oxidation and corrosion at high temperatures, impart strength, cut down impurities, or make the primary metal easier to work into desired shapes.

The Atomic Energy Commission will continue to play an important role in the development of the rare earths, it was pointed out. The A.E.C. is interested in these raw materials because they occur as by-products of the atomic energy pile. Furthermore, the mineral thorium, usually found associated with them, is under study for atomic energy applications.

The total consumption of monazite sand, from which misch metal and the rare earth compounds have been derived in the past, amounted to about 3,000 to 4,000 tons in the United States in 1951. In the past, the principal sources of monazite sand has been India and Brazil. Curtailment of supply from these sources in recent years has been a major factor in spurring the discovery and development of rare earth deposits in the United States.

The Volta River Aluminium Scheme

The general outlines of the Volta River project were published in *The Mining Journal* of August 3, 1951, and further mention was made in our "Notes and Comments" of last week after the publication of the White Paper (Cmd. No. 8702, price 9d.). Under the scheme the United Kingdom Government, the Gold Coast Government, and Canadian and United Kingdom aluminium producers would develop large scale aluminium production on the Gold Coast, and its successful completion would guarantee United Kingdom industry additional sterling area supplies at competitive prices. It is proposed to set up a Preparatory Commission to follow up the work already done and to examine in greater detail the chief problems which would have to be overcome. The following article gives a résumé of the scheme and its contemplated development.

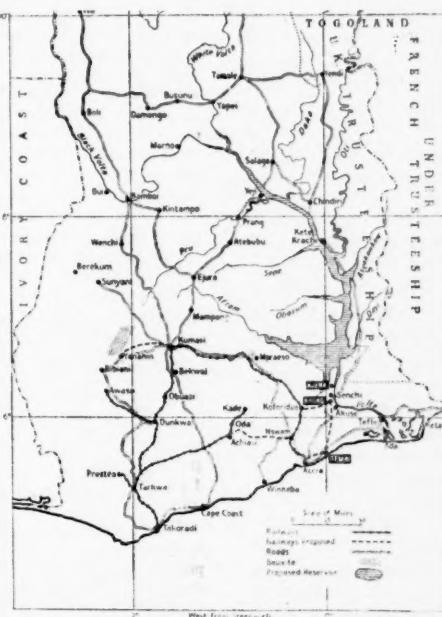
The possibility of developing hydro-electric power by harnessing the Volta River has been a matter of practical politics since about 1924, but owing to the general lack of development in the Gold Coast territory, the heavy capital expenditure necessary to bring the scheme into being could scarcely be justified unless and until adequate industrial outlets existed for the large quantities of power that would be produced.

Preliminary investigations leading to the initial stages of the Volta River development scheme have been considerably accelerated since the end of the second World War, and discussions held between representatives of the Gold Coast and United Kingdom Governments and representatives of Aluminium Ltd. of Canada and the British Aluminium Co. have resulted in the acceptance by these parties of a scheme designed for the development of the Volta River Basin. This scheme follows investigations by the Gold Coast Government which were instigated in 1949 to determine the potential value of the Volta to the economy of the Gold Coast and which resulted in a favourable report on the prospects of developing hydro-electric power for aluminium production, and a joint commission of Aluminium Ltd. and the British Aluminium Co. which, with the encouragement of the Government of the United Kingdom, reported favourably on the practicability of aluminium production in the area in early 1951. It was the report submitted on behalf of the Gold Coast Government which formed the basis for the discussions, which subsequently have taken place, and from it has developed the scheme now contemplated.

This scheme falls into three categories. First, the construction of a power station at Ajena, about 70 miles from the mouth of the Volta River; second, the erection of an aluminium smelter in the vicinity of Kpong, 12 miles from Ajena. And third, the construction of extensive public works which would include new port facilities, railway and road developments, housing, schools and other amenities.

TOPOGRAPHICAL CONSIDERATIONS

A brief examination of the topography of the area shows the factors which have led to its acceptance as a potential source of aluminium supply.



The new port will be at Tema, the proposed dam at Ajena, and the aluminium smelter at Kpong

The Volta River is the principal river of the Gold Coast and flows some 1,000 miles from the head waters of the Black Volta to the sea. It embraces a drainage area of approximately 150,000 square miles, of which about 40 per cent or 61,500 square miles lies within the area formed by the Gold Coast and the trust territory of Togoland. The western boundary of the Gold Coast Northern Territories is formed by the Black Volta which eventually joins the White Volta some 300 miles from the sea. Below this confluence are two main tributaries, the Oti and the Afram.

At Ada, about 75 miles from its mouth, the Volta traverses the low coastal range of the Akwamip Hills. The country towards the hinterland from this point is flat, and the gorge cutting the hills provides a natural site for a high dam which would create a lake of the waters of the Volta and Afram Rivers.

THE DAM AND POWER STATION

The first of the three stages necessary to the development of the Volta River scheme has already been intimated as envisaging the construction of a dam and power station at Ajena, in the gorge through the Akwamip Hills, some seventy miles from the mouth of the Volta. The dam would raise the water level to a maximum height of 260 ft. above sea level and create a lake of some 2,000 sq. miles area while the power station would ultimately have a continuous generating capacity of 564,000 kW and, according to pro-

visional estimates, would cost £54,000,000. Although the full generating capacity would not be available until power should begin to become available from five to seven years after work had commenced, the cost of the initial stage is estimated at £45,500,000. By far the greater part of the power generated would be utilized for the production of aluminium, although some would also be available for other consumers.

Gold Coast Government geologists have agreed that a dam and lake so situated would be a practical proposition, and while it is known that the water level can be raised safely to 260 ft. above sea level, the exact extent of the proposed reservoir will not be known until a detailed survey is completed. Records of the river flow over a period of two decades are available, and from these it is estimated that regulated discharge would provide a continual

water flow of 35,700 cu. ft. per second, with draw down from the maximum level limited to 25 ft. It is calculated that an output of 564,000 kW of firm electric power could be developed by the expedient of cutting through the Senchi and Kpong rapids below the dam in order to lower the tail water level.

THE SMELTER INSTALLATION

The second stage of the scheme involves the erection of an aluminium smelter in the vicinity of Kpong, approximately 12 miles from the proposed dam. It is estimated that the power available from the hydro-electric installation eventually would be 564,000 kW which would suffice for the ultimate production of 210,000 tons of aluminium per annum and also provide 50,000 kW for other Gold Coast consumers. The supply of bauxite would be drawn from the deposits at Mpraeso and Yenahin. These deposits are estimated to contain more than 200,000,000 tons, a total sufficient for approximately two centuries of production at the maximum output capacity.

An overall picture of what the smelter is expected to produce shows that in the initial stages of production, with power available between five and seven years from the commencement of construction operations, provision has been made for an initial capacity of 80,000 tons of aluminium per annum at an estimated cost of £29,000,000. This figure would include the cost of a plant and ancillary equipment, the development of the bauxite mines and the required housing facilities. The cost of development at 120,000 tons annual capacity would be £39,000,000 and at full production capacity of 210,000 tons per annum a provisional figure of £64,000,000 has been given. Aluminium production would begin as soon as the power project was in operation, and agreements between the companies and the two Governments are designed to ensure that all possible development is maintained.

The scheme is somewhat unique in character, in that it provides a pleasing lesson in co-operation between private and public enterprises. For the scheme envisages that the aluminium smelter and the bauxite mines will be managed by private enterprise, with Aluminium Ltd. of Canada, the British Aluminium Co., and the Gold Coast Government sharing in the provision of the equity capital.

The development and operation of the aluminium smelter and the bauxite mines, together with the new towns at the smelter and mines would be the responsibility of a company, the equity of which would be provided by Aluminium Ltd. of Canada, and the British Aluminium Co., except for a minority holding in Gold Coast hands. It is proposed, however, that the United Kingdom Government should provide about one fifth of the initial capital and should be prepared to provide also up to half the cost of expanding capacity from 80,000 to 120,000 tons, if called upon. These contributions would be made on a suitable non-equity basis.

This smelter company would be responsible for the construction and operation of the smelter as well as the development and operation of the mines, together with the construction of townships at the sites of the smelter and the mines. The land required for the smelter itself would be acquired by the Gold Coast Government and would be leased to the smelter company for a period of

eighty years, plus a period of not more than three years included for the construction of the smelter.

THE ADDITION OF PUBLIC WORKS

The third stage of the scheme would be the development of those extensive public works which would be required at an estimated cost of approximately £26,000,000. These works would include many of the standard facilities of a new industrial development, and will include new port facilities, railway and road developments, as well as housing, schools and other amenities. Of the overall sum estimated as necessary for this department of the entire programme, some £11,000,000 would be earmarked for the construction of a new port, and in this connection the Gold Coast Government has considered that, in any case, a new port is required at Tema to supply the general needs of the territory, and preliminary work has already begun.

Thus contemplation of the three stages of the development of the Volta River aluminium scheme show that on present estimates the total cost would demand approximately £100,000,000 expenditure on aluminium production at the initial rate of 80,000 tons per annum and £144,000,000 at the maximum rate of 210,000 tons per annum. The authors of the scheme, however, are well aware that there exists a risk of exceeding these estimates by a substantial margin.

ESTIMATES OF COST

The table below shows how the cost of the Volta River scheme would be divided between the participating parties. The estimated cost of the power project, revised by Sir William Halcrow & Partners in June of this year to take into account rises in wages and salaries on the Gold Coast allows for a margin of error of up to 15 per cent plus or minus on certain items of cost in civil engineering estimates of this kind.

ESTIMATES OF COST

Capacity in tons	80,000	120,000	210,000
<i>Port, Rail, Road and other Public Works</i>			
Gold Coast Government ...	£26,000	£26,000	£26,000
<i>The Power Project</i>			
U.K. Government ...	37,500	41,500	46,000
Gold Coast Government ...	8,000	8,000	8,000
	£45,500	49,500	54,000
<i>The Aluminium Smelter</i>			
U.K. Government ...	5,800	10,800	10,800
Gold Coast Government and private investors* ...	2,300	2,800	5,300/10,600
Aluminium Companies ...	20,900	25,400	47,900/42,600
	£29,000	39,000	64,000
Total £	100,500	114,500	144,000
○ To be borne by:			
U.K. Government ...	43,300	52,300	56,800
Gold Coast Government and private investors* ...	36,300	36,800	39,300/44,600
Aluminium Companies ...	20,900	25,400	47,900/42,600
Total £	100,500	114,500	144,000

These estimates are as firm as can be expected at a stage when detailed bills of quantities and contract drawings have still to be drawn up and competitive tenders obtained. They are forwarded in the White Paper as not likely to be appreciably different from any others which become available before work on the scheme is actually put in hand, provided there is no general increase in the level of costs.

Aspirating Asbestos from Screens

The final preparation of cleaning and grading milled asbestos fibre is of great importance, as the most advantageous selling prices are obtained after proper application of these processes. In the following article are presented notes on the collection of asbestos fibre from screens, compiled as an answer to the difficulty of obtaining concise information on the subject.

The "shaking screen" is the mechanical device which is most used in asbestos milling. In Canadian practice, the screen consists of a wooden frame braced with cross bars in the form of a grid on which wire cloth or perforated metal plate is laid. The size of the screen varies, while those 5 ft. by 10 ft., or 6 ft. by 12 ft., are suitable in most places, others 3 ft. by 10 ft., or even 6 ft. by 18 ft. may be used. Side and upper end boards 4 in. to 6 in. high direct the flow. The screen is suspended or mounted on flexible supports, and is set with an inclination to the discharge end. A shaking or bumping motion is imparted by means of an eccentric drive. In addition to screening out the sand, the motion moves the mass forward, and causes the fibre to rise through the rock fragments to the top layer from which it can be lifted by air suction. As the openings in the screen cloth or plate rapidly become clogged by minute particles of sand, various designs of tappers or beaters are operated on the cloth to keep it clean. At the best, however, only a small section of a screen is doing efficient work in eliminating sand at any one time, and much sand is carried to succeeding processes to the detriment of the fibre. This screen, being made in the mill, is inexpensive to build, and is operated at low cost, especially when the driving mechanism is equipped with roller bearings.

As screening is one of the most important operations in a mill—and as usually practised, the least efficient—many attempts have been and are being made to improve it. It has been found that by placing certain types of vibrating screens ahead of the shaking screen that an important portion of the sand is shaken out, the stone and fibre being bedded on the shaking screen, and at the same time, more sand eliminated. The rapid motion and short length of travel on a vibrating screen does not permit of effective bedding to bring the loose fibre to the top of the rock. It should therefore be followed by a shaking screen, from the end of which the fibre may be lifted. Sand is discarded at 8, 10, 12, or 16 mesh at different mills.

THE COLLECTION OF FIBRE

Preliminary. Before describing the process of "aspirations," the following information on air will be useful:

Weight of 1 cu. ft. Free Air at Varying Conditions

Temp. Fahr.	Weight of 1 cu. ft. lb.			
	Vol. of 1 lb. cu. ft.	Sea-level 14.72 lb.	2,500 ft. 13.34 lb.	5,000 ft. 12.14 lb.
32	12.386	0.0807	0.0734	0.0713
40	12.587	0.0794	0.0722	0.0698
50	12.838	0.0779	0.0708	0.0683
60	13.089	0.0764	0.0695	0.0669
70	13.340	0.0750	0.0682	0.0667

Example: 1 cu. ft. of air at 60° F. at an altitude of 2,500 ft. has a theoretical weight of 0.0695 lb. (Atmospheric pressure also varies with weather.) The volume in cu. ft. at that temperature is 13.089.

In general practice it is reckoned that it requires 3 lb. of air to lift 1 lb. of dirt, therefore at an altitude of 2,500 ft., it is safe to assume that under conditions of efficient design and operation, 1 lb. of dirt will require 40 cu. ft. of air.

Fibre segregated on the surface of a layer of rock fragments on the screen is removed through suction hoods that operate on the principle of a vacuum cleaner. The

opening of the suction hood is 3 to 4 in. wide and extends across the full width of the screen at its lower end.

The cross-section area of the narrow opening is the same as that of the pipe into which it converges. Large fans produce the necessary vacuum. The size motor required to drive a fan giving the necessary lifting power through a pipe of 15 in. in diameter is from 10 to 15 h.p.

According to Canadian practice, suspended at the discharge end of each screen, a few inches from the end and just above the flow of material, is a hood made of galvanized iron. The section opening in length equals the width of the screen, and is itself 3 to 4 in. wide. At a height of 30 to 50 in., depending on the width of screen, the hood converges to a pipe, 8, 12, 15, or 20 in. in diameter. This section of pipe in turn fits into a vertical pipe to which it is not attached. The hood is suspended on wires fitted with turn-buckles by means of which it may be raised or lowered or adjusted along the screen. The lower edges of the hood are equipped with flanges for directing the air current.

In mills of modern design the pipe from the hood leads to a collector, a container made of galvanized iron. The upper section of the collector is 5 to 7 ft. in height and 56, 60, 70, 80, or 90 in. in diameter. The lower half is cone-shaped, 5 to 7 ft. in height, and at the bottom converges to a discharge pipe 10, 12, 15, or 20 in. in diameter. The outlet pipe from this type of collector, which is known as "pull-through," leads from the top to a fan, which for convenience of operation may be set at a distance from the collector. The fan, which is of a multi-blade Keith type, has a speed of from 750 to 900 r.p.m. and handles a volume of air from 25,000 to 45,000 c.f.m. A vacuum is created in the collector and the resultant suction lifts the fibre through the hoods and piping to the collector. The pressure is regulated to give a resistance at the hood of from $\frac{1}{2}$ to 2 in. water gauge as required. The direction of flow of fibre into the collector and an arrangement of internal baffles cause the fibre to drop when the speed of the air current is reduced, while the air, carrying dust and floats, passes on to the exhaust, either the atmosphere or a dust chamber.

GRADING AND CLEANING

Fibre is dropped from the collectors to the graders through lengths of pipe equipped with traps. Both flat and rotary screens are used for grading. Rotary screens may be operated at slow speed to handle a small quantity of fibre, or at high speed on a large production. Where three grades only are made, each half of the screen is covered with a wire cloth of a different mesh.

Fibre is fed into one end of the screen, revolving paddles beat it up, force the short fibre through the screen of the first section, longer fibre through the screen cloth of the second section, and the longest fibre out at the end. Each grade falls on a flat cleaning screen where sand, dust, and unmilled splinters of fibre loosened in grading are cleaned out. Extra grades may be made by allowing portions from each screen section to combine; or any grade may be split into a number of grades in a second rotary screen or on a flat screen. From the ends of the cleaning screen, the fibre is lifted by suction, the unopened fibre and rock being allowed to fall from the end of the screen and be returned to a breaker and milled. The fibre, lifted to a collector, is dropped to a storeroom for bagging.

MACHINERY AND EQUIPMENT

A Heavy Duty Road Grader

The Model 200 Carlisle Heavy Duty Road Grader was exhibited at the Public Works Exhibition by the world distributors, John Blackwood Hodge & Co. The unit is built by the Distington Engineering Co., a subsidiary of the United Steel Companies. Previous notes on the Carlisle Grader have appeared in *The Mining Journal* of April 13, 1951, and May 2, 1952, and these disclosed that the machine features an exceptionally heavy gauge frame of immense strength, Leyland Diesel tandem drive, interchangeable wheels and finger tip hydraulic control throughout.



The Carlisle Grader Heavy Duty Road Grader

The blade is constructed of "Firthag" wear resisting steel and is of aluminium, 12 ft. x 24½ in. x ¼ in., with a maximum blade pressure of 13,310 lb. The overall length of the unit is 25 ft. 5 in., wheel base 18 ft. 11 in., and turning circle 40 ft. The total weight is 23,350 lb.

The Carlisle Grader is equipped with a Leyland type '0.35 direct injection four stroke water cooled, six cylinder engine of 5.75 litres capacity which produces an output of 75 b.h.p. at 1,600 r.p.m. and has a maximum torque of 244 lb./ft. at 4,400 r.p.m.

Available for sterling, the Carlisle Grader is British built and is used in Britain and overseas for clearing road surfaces, building access and haul roads in opencast mines, levelling and clearing quarry floors and similar employment. It is available with a range of optional equipment including three types of enclosed cab in addition to the normal open platform, dozing equipment and a power operated tyre pump.

A New Marshalling Yard

The Scottish Region of British Railways has announced that work is to commence shortly on the preliminary stages of a new marshalling yard at Thornton, Fife. It is estimated that the project will cost more than £750,000.

Thornton is the focal point of the principal portion of the Fife coalfields, as it is surrounded by collieries and opencast sites and main railway routes converge there. Tremendous developments are taking place in the Fife coalfields, as in pre-war days Fife coal was largely shipped from Firth of Forth ports whereas now it is being increasingly transported to Glasgow and other western areas. Major railways schemes for the speedy handling of traffic have been inaugurated at Kelty and Oakley as well as Thornton, which will be near the new Rothes colliery now being sunk, and will expedite the delivery of coal to all parts of the country.

The proposed yard will have twenty sorting sidings with stade capacity for 60 wagons each, six reception sidings, six secondary sorting sidings, approach and departure roads, as well as shunting necks. The sorting sidings will eventually be increased to thirty-five. The "hump" principal will be incorporated, and besides signal box alterations and installation, the project involves the substitution of a new sewage plant for the existing sewage plant of the Strathmore Hospital, and the tipping of some 340,000 cu. yd. of material to form embankments and the laying of approximately 27 miles of rail track. The scheme will take approximately three years to complete and is being developed in close liaison with the National Coal Board.

Brake and Clutch Linings

Brake and clutch linings in the mining and quarrying industries are of great importance, for not only the maintenance of output but the safety of workers depends in part on their efficient application. Excavators and draglines, now extensively used in quarrying and opencast mining operations, require cone clutch linings as well as clutch discs and brake linings for their steering, hoist, drag and propelling gear.

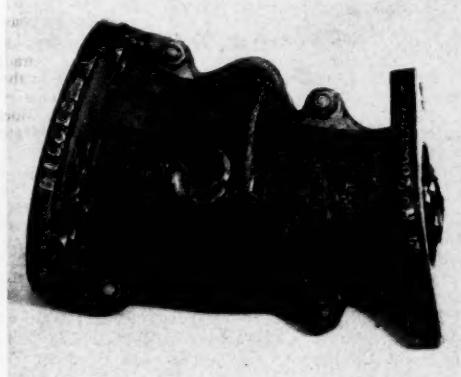
Telamite brake and clutch linings are available for duties in all these applications, while Telamite Gagrip is presented as a super quality lining with a low rate of wear and steady coefficient of friction over a wide range of temperatures, and as such is presented as ideal for use in mine haulage and winding gear.

A Range of Asbestos Covered Cables

Suitably processed and combined with other materials, asbestos provides a cable covering which has outstanding mechanical, thermal and electrical characteristics. A flexible construction is achieved by use of the "Bestos" (asbestos varnished cambric) cables manufactured by British Insulated Callender's Cables Ltd. The Bestos A.V.C. is applied by a special process as a compact felted impregnated covering in two layers, with an intermediate layer of varnished cambric insulation and an overall protective braid of asbestos yarn.

The benefits accruing from use of this construction are that sustained conductor temperatures up to 85° C. are permissible, and insulation for voltages of up to 6,600 volts can be provided. The cables are thus suitable for many applications, and are further presented as having coverings that are mechanically strong and requiring no special accessories or methods of jointing, nor will they burn or carry flame. The Bestos A.V.C. cables are supplied in single core and multicore types, and among their applications to equipment utilized in the mining industry are their installation with traction motor and mining machinery connections and wiring for Diesel locomotive auxiliaries.

Types include standard single core cables, single conductor 250v. standard cables, single conductor 250v. standard flexible cables, single conductor 250v. extra flexible cables, single conductor 660v. standard cables, single conductor 660v. standard flexible cables, and single conductor 660v. extra flexible cables.



The Carlisle Grader Heavy Duty Road Grader

An example of B.I.C.C. Mining Type Coupling Box robustness was recently provided when a coupling box sustained the full impact of a number of pit tubs that ran away down an incline. Though distorted through having taken the full force of the blow, it is significant that the box did not fail electrically nor was any damage sustained by the switch to which the coupling box was attached.

METALS, MINERALS AND ALLOYS

Some of the economic recommendations of the Paley Report found an answering echo in Whitehall this week, where an interim communiqué from the Commonwealth Economic Conference stated that agreement had been reached on the desirability of achieving more stable commodity prices and on the acceptance of the principle of international agreements to bring this about. It is thus becoming increasingly apparent that the return to free trading in the metals, which we are now progressively witnessing, may be considerably circumscribed by the dubious paraphernalia of bulk agreements, and buffer stocks, although the voice of the Republican Administration has still to be heard in Washington on this, as on so many other vital issues.

Perhaps the most unfortunate aspect of past attempts at commodity stabilization, as for example in the case of the pre-war tin buffer stocks, has been the secrecy accompanying such operations. As we had occasion to point out in this column on November 7 with reference to lead and zinc, so long as stockpiling policy continues to be shrouded in secrecy, it really does make market forecasting well-nigh impossible. We hold it to be of primary importance that whatever market controls may in the future be agreed on between the governments of the Western countries, these should be made known to the market as fully as possible, so as to obviate the incalculable effect of unforeseen heavy government buying or selling, such as has been witnessed in London and New York in recent years.

A further threat to free markets is to be seen in the matter of tariffs. Following the report here last week that German and Italian lead-zinc producers' interests were seeking protection comes the news of discussion in Brazil on the same matter. Moreover, the disease appears to be infecting other branches of the non-ferrous metal industry in Western Germany, where it is reported that the aluminium industry is demanding the re-introduction of a 12 per cent import duty on raw aluminium, in the belief that the world aluminium shortage has now been overcome.

COPPER.—The U.S. demand for prompt foreign copper remains strong although it may be significant that some caution in buying for forward delivery has been noted this week. Nevertheless, U.S. consumers are reported to have asked the N.P.A. to allocate them an additional 18,000 tons of December copper. This may prove possible, if other countries do not take up their full I.M.C. entitlement. On the free Continental market copper for early delivery is also tight but forward purchases are reported to be easily come-by.

In Britain slackness in the car industry and metal trades generally has resulted in some consumers not taking up their full allocations. There still seems to be an inclination to run down stocks, doubtless due in part to the apparently widely held belief that the change of Administration in Washington may see an end of the suspension of the import duty and the establishment of a uniform U.S. price for domestic and imported copper at a level several cents below the current 35c. import level. A further pointer may be seen in the weakness of U.K. scrap copper, which for some time has sold at some £20 below the Ministry's maximum price, and which last week had the effect of bringing down the Ministry's price for rough copper from £235 to £200 per ton. At the same time the Ministry announced the withdrawal of the restrictions on the forward purchasing of copper, imposed last month as a precaution when the Copperbelt strike began.

In the first half of the current year, the Belgian Congo has produced 101,294 tons of copper, as compared with 93,395 tons in the corresponding period of 1951.

LEAD.—Lead has been sluggish on the New York market during the past week although the price has remained steady at 14c., no doubt supported by the firmer tone in London.

During the first half of this year the smelter output of lead and zinc in the O.E.E.C. countries is reported to have continued at the same rate as last year. Mine production has, however, increased by 16 per cent and 11 per cent respectively.

TIN.—Australian tin producers have been urging their government to guarantee them a minimum price over the next ten years to stimulate production, which between 1941 and 1951 has declined from 3,494 to 1,449 tons. Currently domestic consumption is running at about 2,700 annually, although this figure is expected to rise to 6,000 tons when the Port Kembla mill starts up. Considering the amount of Australian capital invested in Asian tin mines, the case for protecting the home industry at what may well prove to be well above the average world price is not easy to see. Technological advance, such as the development of a satisfactory flotation process for cassiterite, to which Australian attention has been directed for some time would seem a very much more satisfactory solution.

Malayan shipments during November totalled 5,327 tons, the main destinations being as follows (cumulative totals for the year to date being shown in brackets): U.K. 732 tons (16,158); U.S.A. 2,291 tons (16,976); Continent 1,607 tons (18,943).

ZINC.—Although consumers' stocks in the States remain light, the market is still moving very cautiously and is presumably marking time until free dealings commence in London next month. The East St. Louis price this week is unchanged at 12½c.

The Board of Trade has announced the import and export licensing arrangements which will obtain when private trading is resumed. Members of the London Metal Exchange, who participate in the Bank of England control scheme, will be granted open individual licences for the importation from anywhere of zinc spelter unwrought in ingots, blocks, bars, slabs and cakes, but not including zinc alloys. Consumers who wish regularly to import otherwise than through the Metal Exchange may obtain open individual licences valid for specific sources of supply up to the total quantity which they expect to import over a twelve-month period. Such importers will be required to make a monthly return to the Board of Trade both of the value and sources of their imports. Exports of zinc will also be permitted as from January 1 although normally licences will be only granted for virgin zinc in ingot form.

The new zinc plant at Kolwezi in the Congo is expected to be in regular production by about next August. The plant, which belongs to the Soc. Metallurgique du Katanga, and is being built by Union Minière, has a scheduled annual capacity of 36,000 tons of slab metal.

ALUMINIUM.—The news that the name of Jamaica Bauxites—the Alcan subsidiary—has been changed to Alumina Jamaica Ltd., marks a notable stage in the development of the Jamaican bauxite industry. Since last year the company has been building a plant near Mandeville for the extraction of alumina from the nearby bauxite deposits, and the change of title coincides with the completion of this project and the initiation of alumina production at an annual rate of 66,000 tons. Eventually alumina from this plant will be shipped to the Kitimat smelter, some account of the building of which was given in *The Mining Journal* of October 17, page 430.

As we pointed out in this same article, increased U.S. aluminium output can only be achieved through the use of power sources other than hydro-electric generation. Evidence of this comes from the announcement that Alcoa's new smelter at Rockdale, in Texas, began operations last week. It will have an eventual annual capacity of 85,000 tons. Although initially relying on local industrial power supplies, this plant intends to produce its own power from lignite and will be the first aluminium smelter in the U.S. to use this source of power. The relative cost of the various alternative sources of power compared to the unlimited hydro-electric supplies in Canada must go a long way to determining the further extent the U.S. industry can be economically expanded.

CADMIUM.—The price of cadmium has been falling on the world's markets during the past week. In New York one of the leading producers cut his price from \$2 to \$1.50 with effect from December 1, and the London price was reduced in sympathy the following day from 14s. 4d. to 10s. 9d. per lb. This fall in price is believed to have been due to Belgian metal being sold

in the U.S. at a heavily reduced price. Recently Belgian held stocks were reported to be in the neighbourhood of 1,000 tons.

MAGNESIUM.—U.S. production during the first nine months of the year at 78,397 s.tons was nearly double the production for the whole of last year at 40,881 s.tons. Current consumption is estimated to be at the rate of 45,000 s.tons per annum. The D.P.A. has recommended the closing of two out of the six high-cost government owned plants in the belief that, even without these, production is now sufficient to meet all requirements, including stockpile targets. Immediate closing of these plants is improbable, however, as G.S.A. and Munitions Board sanction is required.

MANGANESE.—Brazil exported 119,900 tons of manganese ore in 1951. During the first seven months of the current year, however, this rate has been substantially increased at 102,838 tons compared with 46,183 tons in the corresponding months of 1951. Brazilian exports this year are reported to be averaging £9 13s. 6d. per ton against £7 6s. 9d. in 1951.

MOLYBDENUM.—In the States, the D.P.A. has raised its production target from the figure of 29,000 s.tons to be achieved by the beginning of 1955, up to 35,000 s.tons during 1954. This increase is covered principally by government requirements.

QUICKSILVER.—Recent heavy U.S. Government purchases abroad have resulted in a further increase in the New York price this week which is now quoted at from \$210-\$214 per flask, but spot supplies are so tight that this price is virtually nominal.

The London Metal Market

(From Our Metal Exchange Correspondent)

The tin market has been slightly more active during the last week, and the main point of interest has been the decrease in the backwardation which has been brought about by more liberal offerings of prompt metal. The basis of the market remains unsatisfactory, and it is still impossible to purchase tin in Singapore and sell forward tin against it in London, and as long as this situation lasts any widening of interest is unlikely. The Eastern price has remained steady, and it is understood that fair tonnages of metal are being purchased for direct shipment to America for the account of private importers. So long as the R.F.C.'s selling price remains fixed and industry has to make purchases from it, it appears that there is little likelihood of any violent fluctuations in Singapore.

The Eastern price on Thursday morning was equivalent to £961 5s. per ton c.i.f. Europe. On Thursday afternoon the market was quiet.

Lead has shown a slightly firmer tendency, but turnovers have diminished and the backwardation between the prompt and the current month settlement has increased. The firmness of the market has come as a surprise to a number of people, as it was generally considered that with industrial interest at its present low ebb prices would tend to sag to a level which permitted profitable shipment of the metal to the U.S., but a few buying orders, perhaps on European account, have been sufficient to absorb all metal on offer. On Thursday afternoon the market was firm.

CLOSING PRICES AND WEEK'S TURNOVER

	November 27		December 4	
	Buyers	Sellers	Buyers	Sellers
Tin				
Cash	£962	£963	£954	£954 10s.
Three months	£945	£946	£945 10s.	£945 15s.
Settlement				
Week's turnover	575 tons		675 tons	
Lead				
Current month	£91 15s.	£92	£94 15s.	£95
Three months	£91 10s.	£91 15s.	£94 15s.	£95
Week's turnover	5,850 tons		4,750 tons	

Iron and Steel

A much more hopeful atmosphere is developing in the iron and steel trade. Rising outputs have inspired a growing confidence that the steel famine which has proved such a serious embarrassment to British industry, will be speedily overcome. The controlling authorities have been ultra cautious in issuing allocations. These are still severely restricted, but there is now

ample backing for distribution of steel on a more generous scale and this will be reflected in the allocation for the first quarter of 1953.

It now seems to be reasonably certain that British imports of iron and steel this year will exceed the aggregate tonnage of exports. Apart from the war years this is the first time that this has happened since 1931. Moreover, the flow of foreign steel to British ports is still in full spate. Nearly 250,000 tons arrived in October and to complete delivery of the promised 1,000,000 tons from U.S.A. there are still substantial tonnages to be shipped. However, our dependence on external supplies will soon be substantially reduced and it is hoped that more material will be available for the export drive. British prices are strongly competitive and if the restrictions on overseas trade are relaxed it is believed that a much more active export trade in iron and steel would develop.

The increase of five per cent in railway freight rates became operative on Monday last, but there is a stronger resistance to inflationary influences, and in the absence of any announcement from the Ministry of Supply it is assumed that this new impost is to be borne by the steel industry without any variation of prices. Happily there has been a reduction in transport charges for foreign ores and the restoration of the melting shops and rolling mills to something approaching capacity working, means a sensible reduction in the overheads.

DECEMBER 4 PRICES

COPPER

Electrolytic £285 0 0 d/d

LEAD AND TIN

(See our London Metal Exchange report for Thursday's prices)

ZINC

G.O.B. spelter, foreign, duty paid	... £110 0 0 d/d
G.O.B. spelter, domestic	... £110 0 0 d/d
Electrolytic and refined zinc	... £114 0 0 d/d
Special high grade	... £116 0 0 d/d

ANTIMONY

English (99%) delivered,	
10 cwt. and over	£225 per ton
Crude (70%)	£210 per ton
Ore (60% basis)	20s. — 22s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) ... £454 per ton

OTHER METALS

Aluminium, £166 per ton.	Osmiridium, £40 oz. nom.
Bismuth (5 cwt. lots) 17s. 6d. lb.	Osmium, £65 £70 oz. nom.
(min. 2 cwt. ex-warehouse)	Palladium, £7 15s. £8 10s. oz.
Cadmium (Empire), 10s. 9d. lb.	Platinum, £27 £33 5s.
Chromium, 6s. 3d./6s. 7d. lb.	Rhodium, £42 10s. oz.
Cobalt, 20s. lb.	Ruthenium, £25 oz.
Gold, 248s. f.o.z.	Quicksilver, £70 10s./£71 ex-warehouse
Iridium, £60 oz. nom.	Selenium, 25s. nom. per lb.
Magnesium, 2s. 10d. lb.	Silver 72 1/2d. f.o.z. spot and f.o.d.
Manganese Metal (96%—98%)	Tellurium, 18s./19s. lb.
2s. 2d./2s. 3d. per lb. d/d	

ORES, ALLOYS, ETC.

Bismuth ...	50% 8s. 6d. lb. c.i.f.
	40% 7s. 6d. lb. c.i.f.
Chromic Ore—	
Rhodesian Metallurgical (lumpy)	£13 2s. per ton c.i.f.
" (concentrates)	£13 2s. per ton c.i.f.
" Refractory	£12 14s. per ton c.i.f.
Baluchistan Metallurgical	£14 15s. 6d. per ton c.i.f.
Magnesite, ground calcined	£26 — £27 d/d
Magnesite, Raw	£10 — £11 d/d
Molybdenite (85% basis)	105s. 10d. per unit c.i.f.
Wolfram (65%)	410s. c.i.f. U.K. buying
"	432s. 6d. d/d U.K. selling
Scheelite	400s. c.i.f. U.K. buying
"	422s. 6d. d/d U.K. selling
Tungsten Metal Powder	30s. 8d. nom. per lb. (home)
(for steel manufacture)	27s. 6d. nom. per lb. (home)
Ferro-tungsten	£32 3s. 9d. d/d per ton
Carbide, 4-cwt. lots	£49 0s. 8d. per ton
Ferro-manganese, home	
Manganese Ore U.K.	6s. per unit
(48% — 50%)	2s. 8 1/2d. per lb. basis
Brass Wire	2s. 2 1/2d. per lb. basis
Brass Tubes, solid drawn	

COMPANY NEWS AND VIEWS

H.M. Treasury—R.S.V.P.

The obscurantist attitude of Her Majesty's Treasury to U.K. controlled non-resident mining companies has now begun to evoke spirited reaction.

Rhodesian Anglo American has announced that on its own behalf and on behalf of Nchanga Consolidated Copper Mines, Rhodesia Copper Refineries, Rhokana Corporation and the Rhodesia Broken Hill Development Co., it has asked leave to introduce a Bill into Parliament, the object of which is to transfer the registration of the companies (which are companies registered under the United Kingdom Companies Acts) to Northern Rhodesia.

This, of course, will not come as a surprise for these companies transferred their seats of control and management to Northern Rhodesia at the beginning of January, 1951 and the logical conclusion of that operation is that the companies should become Northern Rhodesian companies registered under the Companies Ordinance of that Territory. This is of lesser importance than the transfer, already effected, of their control and management in terms of pounds, shillings and pence but it does clear the companies from all complications of U.K. fiscal legislation which, so long as the companies are registered in this country, could involve them in shouldering unwanted liabilities even though they were actually controlled from abroad. The outstanding example of what is referred to here is the abortive scheme introduced by Mr. Gaitskell in 1951 for a scheme of dividend control which would apply to all companies registered under the Companies Act of 1948.

On the other hand those companies which did not emigrate while the going was fairly good are still kicking their heels waiting on the Treasury's decision as to whether or not they should be allowed to depart for milder taxation climes.

Mr. R. L. Prain, at the annual meeting of Roan Antelope Copper Mines at the beginning of this week, said that no reply had yet been received to their application to transfer their residence to Northern Rhodesia submitted more than six months ago. In a masterly understatement, Mr. Prain said that it was difficult to understand why there should be such a delay but he refrains from making any further comment as the application remains *sub judice*, apart from adding that the company recently addressed a further letter to the Treasury "asking when a reply might be expected."

Where all this will lead to remains to be seen. If the Treasury, and/or those associated with it, whose task it is to formulate the Government's case for accepting or rejecting applications of companies to transfer their seats of control elsewhere, have not been able publicly to argue their case before now, there is little reason to suspect that they will have been able in the last two or three months to work out anything more convincing.

Nevertheless, and in spite of the possibility that the Treasury silence may continue for another six months or more, and then only to be broken by a brusque "No," pressure on the Government to present a rational case is growing. And if it does not soon make an effort to dissipate the increasing resentment, it is conceivable that local governments will, ultimately, take up the case of those companies working within their territories, as has already happened in the case of Wankie Colliery. Certainly, influential politicians such as Mr. Roy Welensky would not be averse to striking a blow for the freeing of such companies from the United Kingdom.

Lampa Mining's Pilot Plant Successful

Those who have followed the fortunes of Lampa Mining, the Peruvian silver copper producer, will find that the report and accounts for the year to June 30 last makes interesting and cheerful reading.

Year to Matte Assay per ton Yield Recovery %
June 30 Output Copper Silver Copper Silver Copper Silver
(tons) % (oz.) (tons) (oz.)
1952 968 29.8 258.4 289 250,289 82.6 85.7
1951 1,049 31.3 237.0 329 248,756 76.1 85.7

The feature of the operating results is the continued improvement in the recovery percentage of both copper and silver.

This has shown consistent increases. In the case of copper recovery percentage has risen steadily from 64 per cent in 1949, to 67 per cent in 1950, to 76 per cent in 1951, up to the present commendable figure of 82 per cent. Recovery percentage for silver follows a similar pattern with 73 per cent recovered in 1949, 74 per cent in 1950, 85.73 per cent in 1951 and finally, 85.79 per cent in the year under review.

Year to June 30	Ore Proceeds	Mining Costs	Tax	Net Profit	Dividend	Forward Carry
	£	£	£	£	%	£
1952	113,923	64,434	27,325	8,166	12½	9,385
1951	120,189	87,691	16,895	7,282	10	8,513

Recovery is particularly important to the company, for without a high percentage yield from the charge entering the smelter only relatively high-grade ores can be mined thereby restricting the scope and scale of operations as it compels the company to resort to selective mining.

The other important point to note in the financial results is the appreciable decline achieved in operating costs, a fact which enabled the company to take full advantage of its earnings from the sale of its products which showed a small decline compared with previous years.

However, the meat of the annual report now published is in the statement by Mr. J. Shirley Esplen, the chairman, who describes the progress made with the construction of a pilot plant which will, if successful, make all the difference to the company's future prospects, as it will enable lower grade ores to be treated with profit. Actually, excellent progress in this regard has been achieved and a pilot plant, designed to treat one ton per day at the mines ran very satisfactorily. This has led the company to order equipment for a commercial plant to treat 50 tons per day and so designed that it can be quickly expanded to deal with a throughput of 100 tons per day.

The directors are, of course, aware that what might prove successful in a small pilot plant may not necessarily be repeated when full scale working is begun. But they are confident of success and hope that the new plant will have started up before the end of 1953.

Although the company's issued capital is very small, being £70,000 divided into shares of £1 each, its finances are in good shape. Net current assets stand at £50,043 equivalent to over 14s. per share and the company is well able to withstand the expenditure required to install the new installation estimated to cost in the region of £15,000.

To those who were wondering how the company feels about the curious definition attributed to the word nationalization by the current Bolivian Government, Mr. J. Esplen makes the assuring statement that the Peruvian Government is both enlightened and progressive. The annual meeting will be held in Liverpool on December 19.

Jantar Has More to Come

Although production of both tin and columbite by Jantar Nigeria during the year to September 30 last showed a small decline compared with the preceding year, the advance in the contract price for its columbite by £211 per ton of concentrate more than offset the lower average price received from the sale of its tin. Thus proceeds from ore sales improved but the higher mining costs together with the heavier tax burden—made even more onerous by the additional E.P.L. impost which added £14,100 to the tax bill—prevented the company from obtaining a higher net profit than in the previous year. In this connection it should be noted that the E.P.L. was operative for only nine months of the year and in future years a levy will have to be provided for twelve months.

Year to Sept. 30	Production	Ore* Sales	Mining↑ Costs	Tax	Net Profit	Divi- dend
	Tin Colbalt	(tons)	£	£	£	%
1952	258	214	334,337	140,503	120,947	66,214
1951	266	232	311,544	132,982	99,652	72,357

*After adjustment of opening and closing stocks, less freight royalties and insurance.

†Including depreciation.

The company continued to follow a conservative dividend policy for the very good reason that it will need all the reserves it can muster to finance the modernization of its treatment plant works and to continue its Basalt Lead operation.

With regard to the company's plan to bring its mill up-to-date this was a task which it intended to carry out in any event at the first available opportunity, but the fact that there is an appreciable tonnage of columbite still remaining in areas previously worked has made the completion of this programme an urgent priority. New treatment plant of the latest design has been ordered, but owing to the delay in obtaining delivery it is unlikely that re-equipment of the plant can be completed until 1954.

The explanation as to why the company has only now considered the possibilities of re-working the ground for columbite is, of course, due to the very high price which this metal is now commanding, whereas when columbite was first produced on the company's property, the price received was very low and thus a proportion of columbite was left unrecovered. The plan is to work these areas by gravel pumping and the necessary equipment has been ordered and will be put in operation as soon as possible. It is believed that an appreciable tonnage of columbite can be economically extracted by this method and with the high price levels prevailing for columbite the scheme should more than pay for itself.

In this connection the chairman reminds shareholders that the U.S. Government is prepared to pay columbite producers a 100 per cent bonus on all columbite shipments arriving in the U.S. after May 28th last. On this basis 148 tons of the year's output qualify for the bonus payment but since the first payment had not been received at the time the accounts were made up, any amounts received in respect of this 148 tons will be credited to next year's accounts. Thus although the net profit of the year under review showed a decline of some £6,000 compared with the previous year, this does not give a true picture of the financial results for the year.

With regard to the Basalt Lead operation, equipment for the initial stage is expected some time this month when shaft sinking will commence. As has been pointed out on previous occasions, the Basalt Lead operation is experimental and while its success would mean the prolongation of the life of the mine, the cost of winning the tin by this method will, in all probability, be more costly than tin won by open cast methods.

The total capital expenditure, including the cost of the initial Basalt Lead operation, will, the chairman estimates, require more than £100,000 and this explains why the company has allocated £40,000 (£45,000) to general reserve which brings the total standing to the credit of the account up to £95,000.

The annual meeting will be held in London on December 18. Mr. C. A. P. Tarbutt is chairman and managing director.

Renong Tin Makes Good Progress Despite Difficulties

Taking into account that Renong Tin Dredging during the year to June 30 last had the benefit of only one of its two operating dredges for only nine months of the year and that its other dredge working at Rasa was going through low grade ground, the increase in production by 90 tons was something of an achievement.

Year to Output	Tin	Mining	Tax	Net	Divi-
June 30 (tons)	Proceeds	Costs	£	Profit	dent
	£	£	£	£	%
1952	838	566,420	169,615	141,591	136,903
1951	748	578,333	151,286	156,186	121,333

However, as intimated above, its dredge at Gombak has exhausted all its available payable dredging ground and was finally shut down in the middle of May last. Negotiations are now being carried on with a view to finding fresh tin-bearing ground for it.

Meanwhile, the company's fortunes depend upon its dredge working the Rasa property. While this area and its extensions contain sufficient virgin land to keep the dredge in operation for ten to fifteen years, the ground is not sufficiently high grade to yield a high tonnage output and, in consequence, the decline in production during the current year has been steep; total production for the first four months amounting to only 86 tons compared with 326 tons in the preceding year.

Superficially at any rate, this would lead one to conclude

that the aggregate dividend distribution in the current year will be sharply reduced. But Sir John Hay, in his statement accompanying the accounts, said that provided the price of tin remains reasonably near its present level, the company is prepared to dip into its enlarged carry forward to maintain the dividend distribution at rates to which its stockholders have become accustomed. At June 30 last the carry forward was £42,748 (£33,122) and as the 35 per cent distribution on the company's £1 shares only required a net amount of £32,156 the forward balance provides a reasonably strong shock absorber to tide the company over this particularly difficult period in which only one of its dredges are in operation.

The annual meeting will be held in London on December 15.

Pahang Distributes 85 per cent

That the total distribution of Pahang Consolidated for the year to July 31 last was raised to 85 per cent compared with 75 per cent in the preceding year comes as something of a surprise. For proceeds from the sale of its tin output totalling 2,734 tons (2,763 tons) fell from £2,025,243 to £1,753,844. Nor did the gross revenue figure, despite an increase in a couple of the revenue bearing items, of £1,779,959 compare with the corresponding figure for 1951 of £2,047,716. Mining costs were higher, £661,182 against £550,972, and after providing for all other outgoings, including royalty payments to the Malayan Government amounting to £137,963 (£159,577), tax liabilities totalling £487,150 (£667,034), and providing for depreciation charges of £62,584 (£53,287), the freely available balance was reduced to £320,160 compared with £505,168. However, there was no allocation to general and development reserve against £343,130, and after distributing a net amount of £175,219 (£155,531) and providing £141,000 (nil) for taxation and adjustment of allowances received in respect of its War Damage compensation award, there remained a balance of £3,941 to be added to the £65,766 brought in.

For the last ten months the company's monthly output has been stationary at 220 tons. This output figure, the chairman stated, was an economical figure to work to under present conditions, for if the rate of development was increased there would be difficulty in finding the additional labour force. Like other Malayan tin companies, Pahang has found the continued rise in mining costs a disturbing feature, although in the last three months of its financial year there was small decrease.

Thus with a planned output of 220 tons per month, the end-of-year production figure—given that this figure is attained and it appears that this can be done without undue strain—will not show much of a decline compared with the total output obtained during the year under review. So that assuming a flattening in the cost curve and the continued steady price level for tin, shareholders should not experience any startling decline in their dividend income in the current year.

The annual meeting will be held in London on December 11. Mr. D. J. Ward is chairman.

Tronoh Earns Less But Pays More

The operating statistics of Tronoh Mines for the year ended December 31 last tell their own story. The lower dredge throughput was not offset by a higher yield per cu. yd. and with an advance in working costs by as much as 4d. per cu. yd. one would have expected to be confronted with the same picture in the profit and loss account.

Year to Dredged	Per cubic yard	Cost	Output	Tin Duty		
				(per acre dredged)		
Dec. 31	Dredged	Yield				
		(000)	(lb.)	(pence)	(tons)	£
1951	60	5,871	57.7	13.7	1,459	2,822
1950	79	7,460	64.2	9.6	2,114	2,186

This is not, in fact, the case but at a distance of more than eleven months and in the absence of the chairman's statement, it is difficult to pinpoint the particular features which gave the financial results their present appearance.

Year to Dec. 31	Ore	Mining	Tax	Net	Divi-	Carry
					dent	Forward
	£	£	£	£	%	£
1951	923,648	390,355	416,208	327,173	115	288,429
1950	971,896	313,366	395,896	444,330	100	204,465

No doubt the most important feature was the better average

price received for the company's output which raised proceeds from ore sales to within £48,000 of the 1950 figure despite a tonnage reduction of 655 tons. The other chief items comprising the gross revenue of £1,130,893 (£1,170,994) were £78,299 (£74,008) received by way of tribute and sundry revenue and £124,530 (£121,186) received from interest and dividends. The total earnings figure was sufficient to withstand the higher mining costs and heavier taxation liabilities and although the net profit showed a contraction of over £117,000 the aggregate dividend distribution was actually raised by 15 per cent. The 115 per cent distribution on the 5s. shares forming the company's issued capital of £300,000 required £182,625. There was no allocation to general reserve, however, against £206,019 and after appropriating £60,584 to write off rehabilitation expenses the carry forward was left much stronger at £88,429 compared with £204,465 brought in.

Output has improved during the current year and in the first nine months to September last totalled 1,431 tons compared with 1,112 tons in the comparable period of the year under review.

The annual meeting will be held in London on December 17. Mr. John Herbert Rich is chairman.

Southern Tronoh Produces Less But Earns and Pays More

The operating results of Southern Tronoh tin dredging for the calendar year 1951 do not compare with the preceding year's results.

Year to Dec. 31	Dredged (acres)	Per cubic yard			Output (tons)	Tin dredged (£)
		Dredged	Yield (000)	Cost (£.)		
1951	33	3,296	0.53	12	778	1,749
1950	38	3,538	0.54	9	847	2,897

Yet despite having nearly 70 tons less to market than in 1950, proceeds from more sales advanced by roughly £132,000 and while both mining costs and the tax man's share required a larger share than in 1950, the company was able to raise its dividend by 10 per cent, to appropriate £10,586 to write off rehabilitation expenses and to increase its carry forward—no mean achievement.

Year to Dec. 31	Ore Sales	Mining Costs	Tax	Net Profit	Divi- dents		Carry forward (£.)
					£	£	
1951	506,462	170,000	216,230	118,420	100	90,355	
1950	374,513	133,939	123,412	123,171	90	88,521	

The outlook for the current year is not too good. The average price per ton tin ore is averaging out at a lower level than last year and with production for the first nine months of the current year at 454 tons as against 650 tons in the comparable period of the period under review, it is not likely that the financial results achieved in 1951 will be duplicated this year.

The annual meeting will be held in London on December 17. Mr. John Herbert Rich is chairman.

Temoh Tin Does Well By Its Shareholders

Temoh Tin Dredging's property situated in the Batang district, Malaya, is worked by gravel pumps on a tribute basis and the annual report now published reveals that during the year to June 30 last, treatment of lower grade ground, restricted running time during the hours of darkness, owing to the lawlessness still prevailing in Malaya, and the necessity to re-site the palongs hampered the tributaries output. This resulted in the company receiving only £26,172 from tributes and rent, compared with £52,284 in the preceding year.

June 30	Gross Revenue	Working Profit	Tax	Net Profit	Divi- dents		Carry forward (£.)
					£	£	
1952	28,499	22,264	15,638	6,626	10	6,542	
1951	53,891	47,405	28,382	19,023	12½	7,266	

Expenses were slightly less and the tax burden was much lighter, but even so net profit was cut to roughly one-third of that achieved in the previous year. In the circumstances shareholders should be thankful that their dividend income was not reduced by more than 2½ per cent. In fact, to distribute 10 per cent the company had to call on its forward balance to the extent of £724.

The outlook has improved in the current year and output for the first four months totalled 99 tons, an increase of 12 tons over the corresponding period of the year under review. This was due, the chairman said, to the treatment of slightly higher grade ground and to the recent installation of a second gravel pump in the north-west area. The company has lately received word that its claim for war damage and losses has been assessed at £20,574 and that 75 per cent of this award would be paid shortly.

The annual meeting will be held in London on December 22. Mr. R. Sancroft-Baker is chairman.

Ipoh Tin Experiences Difficulties

Obstinate dredging ground and other technical difficulties, coupled with extremely trying working conditions brought about by the prevailing state of emergency in Malaya, form the background against which the operating results of Ipoh Tin Dredging for the year to March 31 last should be viewed.

Year to Mar. 31	Dredged Acres	Cu. yd. (000)	Per cubic yard		Output (tons)	Tin Proceeds (£)
			Yield (lb.)	Cost (pence)		
1952	33	1,751	0.33	14.4	256	128,701
1951	30	1,695	0.47	11.5	358	171,496

*Excluding tribute received of £28,157 (1951—£55,966).

Despite a greater volume of ground dredged the grade treated was too low to yield good results and with working costs continuing their upward course, it was only the reasonably high average price received per ton ore sold that enabled the profit and loss account to make reasonable showing. Even so it was necessary to dip into the carry forward for £2,807 to pay the year's distribution.

Year to Mar. 31	Gross Revenue £	Expenses £	Tax £	Net Profit £	Divi- dents		Carry forward £
					s. d.	£	
1952	173,542	121,574	39,025	12,943	3	0	39,503
1951	238,905	102,033	85,487	51,385	2	4½	42,193

*Issued capital is £160,000 in shares of 16s. each.

Unhappily, the outlook for the current year, on present evidence is not too bright. Revenue from the Lahat section, which during the year under review fell from £59,966 to £28,157, has shown a further fall during the current year, while the dredge in the Puchong section has encountered exceptionally difficult ground, having a lower value per cu. yd. than anticipated. This combination of adverse circumstances is reflected in the output figures for the first six months of the current year which shows that tin ore output has fallen to 191 tons compared with 331 tons in the comparable period of the year under review. But the chairman believes this to be only a temporary set-back and he looks forward to improved results in the near future. It is to be hoped that his expectations will be fulfilled for the continued rise in wages, stores, and operating costs generally, is a serious matter as the company's areas are not particularly high grade and each unit rise in costs renders more of the remaining dredging ground in the Puchong and Ayer Etam sections unpayable. At the date of the report, November 28 last, the directors put the estimated life of the Puchong section at a not-too-certain four years, and although the undredged area of the Ayer Etam section is 232 acres the same conditions apply to this area.

The company's finances are in good shape and net current assets stand at £205,173 which is appreciably more than the company's issued capital of £160,000.

The annual meeting will be held in London on December 22. Mr. R. Ellerton Binns is chairman.

"West Africans" in October

Of the six companies listed in the table below, submitting returns for the first month of their current year, only Ashanti and Marlu have got off to a flying start. Konongo and A.B.A. announce results virtually unchanged from their opening month in the previous year but Ariston and Bibiani show profit declines of approximately £7,000 and £3,000 respectively. But perhaps the feature of the returns is that announced by Taquah and Abosso which has reported the lowest monthly loss since October 1951.

Company	October, 1952			Current Financial Year			Last Financial Year		
	Tons	Yield	Profit*	Tons	Yield	Profit*	Tons	Yield	Profit*
	(000)	(oz.)	(£,000)		(000)	(oz.)	(000)	(oz.)	(£,000)
A.B.A.	56	9,282	26.4	1	56	9,282	26	59	8,819
Ariston Gold	30	9,772	46.7	1	30	0,000	47	28	10,071
Ashanti	21	14,500	74.7	1	21	14,500	75	18	13,524
Bibby's (1927)	6,035	11.4	1	3,100	6,035	11	0,000	11	11
Bremner Gold	578	1,040	10	60,122	1,040	10	69,000	34,136	184
G.C.M.R.	9	3,146	9.4	4	34	12,330	34	34	12,203
Konongo	2	2,178	10.1	1	2	2,178	10	2	2,214
Marlu Gold	40	4,093	12.7	1	40	4,093	13	41	2,875
Nanwa Gold	2	598	N/A	10	27	6,866	N/A	26	4,268
Taqua and Aboso	24	5,732	L0.3	7	150	34,819	L51	146	35,184

*Including premium revenue since November, 1951. As the basis of calculating monthly profit varies from company to company a direct comparison one with another is not possible. The basis for any one company has, however, remained consistent, unless otherwise indicated.

*One treated given in cu. yd. L indicates a loss.

Company Shorts

Siamese Tin Syndicate Group Submit Their Case for Joint Venture with Rio Tinto.—Mr. K. O. Hunter, chairman of Siamese Tin Syndicate and Bangrini Tin Dredging, in a circular to shareholders of the two companies has given further information about the proposed agreement with the Rio Tinto Co. to enter into a three-cornered partnership to develop the Siamese Tin Syndicate's group's lead and zinc properties in the Leadhills and Wanlockhead areas in Scotland. Preliminary notice of this proposal was published in our issue of Nov. 7.

The salient points of this agreement, outlined in the circular, were that the Rio Tinto Co. (R.T.C.), Siamese Tin Syndicate (S.T.S.), and Bangrini Tin Dredging (B.T.D.), would take over jointly as from August 1, 1952, the Leadhills and Wanlockhead enterprise carried on up to that time by S.T.S. and B.T.D.

The funds for the joint venture, the circular states, will be provided as to R.T.C., 51 per cent, and S.T.S. and B.T.D. jointly 49 per cent. The immediate object is the unwatering and examination of the Glencrieff workings at Wanlockhead, estimated to cost approximately £150,000. If the result of this examination is favourable, the second stage will be to proceed to development and production at a further cost of approximately £350,000. On proceeding to the second stage, S.T.S. and B.T.D. would jointly be credited, as part of their share of the further capital, with £45,000 as Vendors' consideration.

However, a decision will be taken when the second stage has been reached whether to continue the joint venture or to form a limited liability company.

The total sum involved so far as each company is concerned is estimated at about £120,000 in the event of the project being carried to fruition. It is considered that each company can provide this sum without jeopardizing its other activities. If, however, the present scheme is abandoned before embarking upon the second stage, taking into account the taxation allowances which are expected to accrue, the net loss to each company, Mr. Hunter said, would be small. Meetings of S.T.S. and B.T.D. to approve a resolution approving the agreement as authorized above will be held in London on December 17.

Trinidad Leaseholds Improves Its Position.—One of the principal factors in raising profits of Trinidad Leaseholds during the year to June 30 last was the increased refinery throughput which was not offset by the modest decline in crude oil production.

Crude Oil		Group	Tax	Net Profit	Dividend				
Year to Output	Refined								
June 30	(bbl.)	(bbl.)	(bbl.)	(000)	(000)	£	£	£	%
1952	7,243	26,569	7,970,939	4,228,868	1,944,595	161			
1951	7,300	22,800	5,983,401	3,212,216	1,470,705	161			

Other revenue components behind the good profit figures was the expansion in shipping and marketing activities, coupled with firm product prices and improved freight rates. And all these favourable features more than offset the rise in costs.

Operations in Trinidad were satisfactory. Despite production withdrawal, crude reserves have been maintained and, as can be seen from the above table, refinery throughput increased by 16 per cent. More than that, the company's scheme for modernizing its plant in Trinidad, including the construction of a catalytic cracking plant, has been completed. While deep drilling has not proved to be successful, shallow and medium outstep drilling has bettered the oil reserve position.

The company's operations in Canada have been on a larger

scale. The small producing and drilling company in Alberta purchased last year has been extended by the acquisition of further leases and of the nine wells drilled on proven and semi-proven leases, seven were completed as producers. Five exploratory wells drilled, however, failed to locate commercial oil. Nevertheless, the company is pressing on with its search for Canadian crude oil and a strong team of technicians have been established in Calgary. Meanwhile the company's Ontario refinery has increased its scale of operations and enlarged its storage facilities.

On the distributing side, the company is in a strong position to compete in the open market when branded petrol returns in February through its participation in Regent Oil.

The annual meeting will be held in London on December 19. Mr. Simon J. Vos is chairman.

British Burmah Petroleum Reduces Its Debit Balance.—As noted in these columns last week, the importance of British Burmah Petroleum's assets in Burma have diminished since the war while its interests in South Africa have expanded, so that currently the main revenue of the parent company is derived from its South African subsidiary.

Consolidated income for the year to March 31 last was £89,780 (£75,889) of which £49,439 (£41,867) was received by way of investments in associated and other concerns. Debenture interest absorbed £9,695 (£11,081), sundry charges £32,767 (£42,491) and after all other outgoings, working profit was £46,978 compared with £19,720. South African taxation was hardly a burden at £1,500 but the sum of £20,400 (same) was appropriated for the debenture sinking fund and after writing off assets and interests in Burma £7,483 (£350,822), the group debit balance was reduced from £537,350 to £521,015.

The annual meeting will be held in London on December 19. Mr. A. P. Faickney is chairman.

Waterval (Rustenburg) Platinum Pays Much More.—The report and accounts of Waterval (Rustenburg) Platinum Mining for the year to June 30 last showed that net profit, after providing for all outgoings including tax liabilities of £148,620 (£60,645), was £537,733 compared with £100,231. Dividend distributions totalled 60 per cent equivalent to 1s. 6d. on the 2s. 6d. shares forming the issued capital of £843,750. This compared with the payment of 17½ per cent in the preceding year on an issued capital of £562,500. Moreover, while the first distribution of 40 per cent for the year 1951-1952 was paid on the smaller issued capital, the final of 20 per cent was paid on the larger capital. The 60 per cent payment absorbed £93,750 against £98,438. The forward balance at the financial year-end was £159,660 compared with a mere £15,677 brought in.

The company's principal assets are its holdings of 316,667 shares in Rustenburg Platinum, 584,600 shares in Potgietersrust Platinum and 60,000 shares in Union Platinum. The annual meeting will be held in Johannesburg on December 17. Mr. E. S. Hallett is chairman.

Rustenburg Platinum Pays 135 Per cent on Increased Capital.—Metal sales, less production costs, refining, railage, freight and insurance of Rustenburg Platinum for the year ended August 31 last expanded from £2,017,818 to £2,331,997. Other minor revenue bearing items brought gross revenue up to £2,354,964 (£2,024,199), and after providing for all expenses, including taxation liabilities of £677,139 (£199,980) net profit was £1,631,543 compared with £1,776,919.

Dividends totalling 135 per cent were distributed on the £1 shares forming the £808,000 issued which compares with 160 per cent paid in the preceding year on an issued capital of £606,000. Stock realization reserve received £456,083 (£416,544) and the balance carried forward at the financial year-end was £84,500 compared with £199,840 brought in.

The annual meeting will be held in Johannesburg on December 10. Mr. K. Richardson is chairman.

Pots Plats Raise Dividend.—The report and accounts of Potgietersrust Platinum, which holds 43 per cent of the issued capital of Rustenburg Platinum, for the year to August 31, last showed that net profit, after providing for all expenses including tax liabilities of £23,773 (£156,415), was £441,226 against £256,550. Dividends paid totalled 100 per cent on the 9d. shares comprising the issued capital of £441,563. This compares with a dividend of 88 8/9 per cent paid in the preceding year on an issued capital of £294,375. The carry forward at the financial year-end was £4,359 against £4,695 brought in.

The annual meeting will be held in Johannesburg on December 10. Mr. K. Richardson is chairman.

S.A. Coal Estates Earns Less But Maintains Dividend.—The drop in total coal sales by 280,769 tons to 1,659,044 tons during the year to June 30 last of South African Coal Estates

(Witbank) resulted in a contraction in the company's gross profits from coal mining to £276,658 compared with £319,328 in the preceding year. This was the chief item of revenue comprising the total income figure of £285,030 against £332,237 previously. Expenses were slightly heavier and after making provision for all charges including tax liabilities of £55,653 (£73,000), net profit for the year was £211,018 compared with £244,062 in 1951. The aggregate dividend distribution was maintained at 20 per cent on the £1 shares forming the £1,000,000 issued capital, which absorbed £200,000. Funds totalling £15,565 were appropriated for capital expenditure and £2,484 was required for expenses incurred in reclaiming equipment from Landau No. 2 leaving a carry forward at the financial year-end of £87,327 compared with £98,858 brought in.

The annual meeting will be held in Johannesburg on December 17. Mr. T. Coulter is chairman.

New Union Makes Steady Progress.—The profit and loss account of New Union Gold Fields for the period June 8, 1951, to June 30 last revealed that the company's dividend income increased by approximately £23,000 to £60,701. This was the chief source of revenue although interest received advanced to £20,765 (£7,501) and profits from share dealings contributed £24,324 (£41,517). These earnings, together with miscellaneous revenue of £1,451 (£220), gave a total income for the period under review of £107,241 compared with £88,187 in the preceding year. Administration expenses were heavier, £31,264 against £26,105, and after providing for all other outgoings net profit for the period was £57,234 compared with £43,978 in the previous period, which ran from July 1, 1950, to June 7, 1951. This net figure was augmented by £147,721 arising from the writing back into the profit and loss account £100,221 previously provided for doubtful debts, mining properties, etc., and from £47,500 transferred from the share premium account, making £563,833 (£618,944) available.

The sum of £521,587 was provided for writing down the value of shareholdings, lands and farms, £10,000 was transferred for the redemption of the company's 5 per cent Unsecured Registered Notes leaving the forward balance at the financial year-end at £30,809 compared with £358,878 brought in.

The annual meeting will be held in Johannesburg on December 15. Mr. H. A. Mackay is acting-chairman.

Natal Coal Exploration's Colliery to be Ready in 1954.—The annual report of Natal Coal Exploration Co. for the year to June 30 last gives further information on the progress made with the establishment of its colliery in an area south of Newcastle. The coalfield area is a compact mining block of approximately 9,064 acres, has been thoroughly prospected, and it is estimated to contain marketable reserves of first grade coal totalling 28,000,000 sales tons. On the basis of the planned output of 810,000 sales tons per annum, the colliery to be established will have a life of about 35 years, the report states.

Mr. T. Coulter, chairman, in his statement said that the sinking of the incline shaft has made excellent progress and at November 3 last was 2,030 ft. down, equivalent to a vertical depth of 290 ft. Subject to good progress being made, Mr. Coulter declared, with the erection of the preparation plant, and provided that deliveries of other heavy equipment and plant are not unduly delayed, it is expected that the colliery will be ready for production in January, 1954. The annual meeting will be held in Johannesburg on December 17.

"Satmar" Reduces Dividend.—The report and accounts of South African Turbante Mining and Refining for the year to June 25 last showed that the net profit, after providing for all expenses including tax liabilities of £40,000 (£38,856) was £72,116 compared with £113,700 in the preceding year. The reduced profit was attributed chiefly to a fall in crude oil production from 9,228,553 gallons to 8,117,323 gallons owing to an insufficient supply of underground native labour. Shareholders dividend income was reduced from 12½ per cent to 10 per cent and after providing £80,000 (nil) for contingencies and £15,000 (£13,900) for debenture redemption, the carry forward at the financial year-end was £35,933 compared with £49,314 brought in.

The explanation as to how the company was able to make such relatively large appropriations without suffering a greater reduction in its forward balance was due to the receipt of revenue amounting to £78,847 from its one-third interest in its Oil-from-Coal Venture.

The annual meeting will be held in Johannesburg on December 18. Mr. S. G. Menell is chairman.

New Nigel Passes Dividend.—The explanation for the decline in gross income of New Nigel Estate and Gold Mining for the year ended June 30 last from £84,397 to £22,363 was the considerable drop experienced in profits from the realization of share investments which contracted by approximately

£63,000—the actual decrease being from £69,242 to £6,401. The net profit, after providing for all expenses including £8 (£13,863) for taxation, mirrored this contraction in earnings and amounted to only £4,709 against £41,235. The sum of £25,000 (£20,000) was provided for the diminution in the value of fixed assets, a step made necessary in view of the uncertain future of the Noyedale township, and thus no dividend has been declared against 5 per cent in the preceding year. The carry forward was reduced to £1,845 against £18,607 brought in.

The annual meeting will be held in Johannesburg on Dec. 10. Mr. H. A. Mackay is acting chairman.

Lydenburg Gold Pays Less.—The net profit of Lydenburg Gold Farm for the year ended June 30 last, after providing for all expenses including £256 (£9,598) for taxation, was £23,522 compared with £83,128. Although this is a considerable decline by any standard of reckoning, the explanation is that the 1951 figure included £64,460 representing non-recurring revenue received by way of vendor consideration on the Harmony flotation, arrear interest, an outstanding dividend from New Union Goldfields, and profit on the sale in 1947 of shares in Village Main Reef.

In fact, if the foregoing non-recurring receipts are excluded the profit for the year under review reveals an increase of some £5,000 over the previous year's earnings. In any event, the year's results have not been a cause for pessimism and a dividend of 2d. per share equivalent to 9.5 per cent (14.2 per cent) has been declared which will absorb £20,222, leaving the carry forward at £27,088 compared with £23,788 brought in.

The annual meeting will be held in Johannesburg on December 11. Mr. H. A. Mackay is acting chairman.

Wit. Extensions Reduced Forward Balance.—It has been impossible, so far, to proceed with the original plan to turn Jennette Gold Mines into a public company, states Mr. H. A. Mackay, acting chairman of Wit. Extensions, in his statement accompanying the accounts for the year ended June 30, 1952. That this conversion into a public company has not been effected is due, he said, "to the prevailing state of the capital market as well as other factors which have affected the share market to an extent which has made it inopportune to make an issue of shares."

A feature of the Profit and Loss Account of Wit. Extensions for the year to June 30 last was the appropriation of £85,000 for diminution in value of share investments, an outgoing which played a large part in reducing the forward balance to £49,200 against £139,868 brought in.

The annual meeting will be held in Johannesburg on December 11.

New Durban Gold Earns More.—The profit and loss account of New Durban Gold and Industrials, whose principal source of revenue is from the New Durban Mine which is under tribute to Durban Roodeport Deep, showed that the net profit, after providing for all expenses including £8 (£7) for taxation, was £6,646 compared with £1,628 in the previous year. The forward balance at the company's financial year-end was £10,833 against £4,858 brought in.

The annual meeting will be held in Johannesburg on Dec. 10. Mr. H. A. Mackay is acting chairman.

Griqualand Exploration's Excellent Results.—The profit and loss account of the Griqualand Exploration & Finance Co. for the year to May 31 last showed an expansion in trading profit by £84,470 to £117,891. This satisfactory result, the Chairman stated, was mainly attributable to the increased output arising from modifications made to the milling plant. Unfortunately, no production figures are given.

With a working profit of £90,186 (£16,415), the tax attracted was, understandably, heavier and at £56,000 (£8,800) net profit was reduced to £34,186 compared with £7,617 in the preceding year. Shareholders participated in the better results and received a dividend of 6d. plus a bonus of 3d. per 2s. share. The sum of £16,000 was allocated to capital reserve bringing this account up to £36,000 which, together with the issued capital, made and raised total capital funds to £72,000 which the chairman said was necessary for the efficient working of the company. The company is, therefore, proposing to capitalize this amount by issuing to shareholders one new share for every share held. Once this has been effected it is then proposed to consolidate the issued share capital so that every two issued shares and every two unissued shares of 2s. each shall respectively constitute one 4s. share. The carry forward at the financial year end was £13,373 compared with £2,274 brought in.

The annual meeting, followed by an extraordinary meeting to give effect to the changes in the company's capital structure, will be held in London on December 22. Mr. Herbert J. Page is chairman.

Tanganyika Diamond and Gold Development Reduce Loss.—The net loss of Tanganyika Diamond and Gold Development Co. for the year ended June 30, 1952, at £2,893 was an improvement of £1,302 on the preceding year's loss totalling £4,195. Taxation took £8 (£342), no dividend was declared (10 per cent). The carry forward was £12,778 against £15,679 brought in.

OCTOBER TIN OUTPUT IN TONS OF TIN CONCENTRATES

Company	Oct.	Months since year to date		Financial Year to Date	Company	Oct.	Months since year to date		Financial Year to Date
		This	Last				This	Last	
EASTERN									
Amput	40	10	781	851	Nigeria (contd.)				
Bangkin	71	10	496	917	Amal. Tin	49*	7	271	155
Baru S.	24	10	56	497	Bischi	42	10	462	528
Idris	74*	9	243	166	Ex' Lands	11*	10	130	130
Jelapang	31	10	279	251	Filani	8	10	70	44
Kampong	32	7	187	252	Jantar	20	1	20	20
Kamunting	156	7	1270	1487	"	18*	1	18	
Kinta K.	9	7	79	108	"	12	1	41	45
Klang River	36	10	243	315	Kaduna S.	38	10	67	206
Kuala K.	217	7	1166	1322	Keffi	27	7	161	138
Kuchai	1	1	54	128	N'guta Ex.	11	10	74	83
Larut	40	10	617	736	N'guta K.	19	10	116	143
Lower Perak.	103	6	484	418	N'guta T.	25	10	247	198
Malaysian	7	7	40	35	Riron	12*	10	41	44
Rahman	220	10	660	726	Rukuba	12	7	57	106
Rahman	42	4	156	206	S. Bakeru	6	10	49	51
Rantau	98	4	301	193	Tin Fields	2	7	12	15
Rawang Con.	85	7	366	401	U. Tin	12	4	48	43
Rawang Tin.	64	7	466	719					
Renong	18	4	86	326					
Reh	322	2	227	227					
Tambak	15	10	117	153					
Tanjong	70	10	848	1049					
Tongkah	54	4	283	201					
NIGERIA									
Amal. Tin	337	7	2435	2677	MIS.C.				
					Beralt	9	7	79	28
					"	172*	7	1292	1329
					Geovor	50	7	330	425
					S. Crofty	41	10	381	10
					"	10	10	1	44
					Rooiberg	2361	3	236	215

*Columbite

†Wolfram

‡Three months' figures

ANGLO-ECUADORIAN OILFIELDS LTD. INCREASED PRODUCTION

The Thirty-Fourth Annual General Meeting of the Company was held at Dashwood House, Old Broad Street, E.C.2, on December 2, 1952.

The following is an extract from the Statement by the Chairman, **Rt. Hon. Lord Forres**, circulated with the report and accounts:—

Crude oil production for the year was 269,130 tons as compared with 258,047 tons for the previous year, an increase of 11,083 tons, or 4.3 per cent, of which 2,017 tons was from deep production and 9,066 tons from shallow production.

The footage drilled showed a marked improvement, the total for the year amounting to 147,810 ft. compared with 111,016 ft. last year, an increase that may be attributed to improvement in drilling technique and ancillary operations.

During the year eight deep wells were completed. Two drilled in the northern sector of the Concession proved unproductive. Of four wells drilled in the Ancon area three were completed as flowing wells with moderate production. The remaining two wells were drilled to test for deeper production in the old Ancon field, but no oil producing formation was encountered at greater depth. One well was plugged back and completed as a small shallow producer.

Little success attended the continued search for a new deep oil pool. Three exploration wells were completed during the year, two were dry and the third had an initial production of 30 barrels per day. One well was that referred to in my previous statement as being drilled to test formations underlying the deepest producing horizons in the Ancon area. It was drilled to 9,111 ft., with no result, when it was considered that the drilling rig had reached the limit of its capacity.

Shallow well development continued satisfactorily, 62 wells being completed as producers in the Santo Tomas area. The extent of this productive area has not yet been fully defined, and during the year under review the development continued, opening up new territory to the south and south-east. The wells in this new territory have a normal initial production of 50/70 barrels per day, but on September 13, 1952, a well was completed in this area flowing over 1,000 barrels a day, and to the end of October had produced 40,000 barrels in 48 days. This well was responsible for the increase in production for September and October which you will no doubt have noticed. I must emphasize, however, that this well is merely an offset to existing wells, and does not open up a new area, and,

as with all high-producing shallow wells, will decline rapidly.

The Charcoal Casinghead Gasoline plant installed in the Santo Tomas area three years ago was enlarged to take care of increased production in this area. In addition, another small plant, fabricated on the Field, was installed in the old part of the Field to process gas which had previously been passed direct into the fuel lines. As a result of this additional capacity and improved plant operation, the total production of Casinghead gasoline for the year under review was 131,000 barrels, compared with 113,000 barrels for the year 1950-51.

THE REFINERY

Your Company's refinery at La Libertad operated satisfactorily throughout the year, 206,000 tons of crude produced by the company and its subsidiaries were processed during the year, for sale in Ecuador.

The keel of the new 1,400 tons deadweight tanker, to which I referred last year, was recently laid and it is still expected that delivery of the tanker will be given during October, 1953.

Although there has been an increase in production during the year, it will be noted that profits have declined. This is due to a number of factors, the principal one of which is that the cost of production has risen considerably, due to increases in the prices of materials and equipment, and the large increase in wages granted to workmen under the last Collective Agreement. In addition, the cost of maintenance and survey repairs to the existing three coastal tankers was abnormally high, amounting to £98,000, and Development Expenditure, which following our usual custom has been entirely written off, exceeded the previous year by £61,080, due to the increased footage drilled.

QUESTION OF PRICES

East Texas and the Mid-Continent wells posted prices for crude oil, on which our export sales of crude oil are based, have remained unchanged since the end of 1947, and the Government of Ecuador has not authorized any increase in the sales prices of refined products sold within the Republic since 1948.

Additions to Equipment Account during the year amounted to £288,732 and consist chiefly of further drilling machinery and tools, pumping plants, pipelines, buildings, motor transport, a third Casinghead Gasoline Extraction Plant and more equipment for our various deposits in Ecuador.

Drilling Expenditure amounted to £234,285 and in conformity with our usual procedure this amount has been written off.

As mentioned earlier in my statement, the results from operations of our subsidiaries have proved disappointing and your Board consider it wise to reduce the investment by writing off a further £10,000. Certain changes were made in our investments during the year resulting in a profit of £6,561. It will be proposed that this amount be transferred to investments reserve. The remaining items on the assets side of the balance sheet are of a fluctuating nature and do not call for any special comment.

On the liabilities side it will be noted that exchange reserve has been increased by £25,176. As explained in my statement last year this item arises through exchange fluctuations in the Ecuadorian sucro. It is still your Board's opinion that it is prudent to retain an exchange reserve until rates become more stable.

NET PROFIT AND DIVIDEND

In the Profit and Loss Account due provision has been made for Income Tax, Profits Tax and also the Excess Profits Levy which latter operates from January 1, 1952. The resultant net profit for the year amounts to £172,492 and adding to this figure the sum of £141,558 brought forward from the previous year a total of £314,050 falls to be allocated.

Your Board recommend that this amount be dealt with by the payment of a dividend at the rate of 10 per cent (less Income Tax) the allocation of £50,000 to General Reserve, £6,561 to Investments Reserve, £33,150 to Tax Equalization Account and carrying forward the sum of £145,489.

Addressing the meeting, the chairman said: My statement issued with the report gives, I think, a concise résumé of the company's operations during the year and while I have no major comments to add thereto I think you might like to know more about the well mentioned in the chairman's statement in the following terms: "The wells in this new territory"—that is the Santo Tomas area—"have a normal initial production of 50-70 barrels per day, but on September 13, 1952, a well was completed in this area flowing over 1,000 barrels a day and to the end of October had produced 40,000 barrels in 48 days." I think shareholders might like to know that that well, which was a good one for our field although it is a shallow well, has held up on the whole very well and the latest figures we have from the field indicate that she is still flowing 600 barrels a day.

The report and accounts were unanimously adopted and the dividend as recommended was approved.

The retiring directors, the Rt. Hon. Lord Forres and Mr. L. W. Berry, O.B.E., were re-elected, and the remuneration of the auditors, Messrs. Deloitte Plender Griffiths & Co., having been fixed, the proceedings terminated.

ANGLO-TRANSVAAL CONSOLIDATED INVESTMENT CO. LTD.

VOLTA RIVER PROJECT — ANGLOVAAL PIONEERS GOLD AND URANIUM — WEALTH'S YARDSTICK

Mr. S. G. Menell, the Chairman, in his address at the Nineteenth Annual General Meeting reviewed the Company's Accounts which disclosed that Reserves were maintained at £3,850,000 and while there was a shortfall of just over £1,000,000 in the market value of quoted investments (book value £5,400,000) the current assets showed a surplus over current liabilities of a similar amount. The acquisition of further shares in Anglo-Transvaal Industries Ltd. had made that Company a subsidiary.

GOLD MINING INTERESTS

Mr. Menell stated that production at Rand Leases (Vogelstruisfontein) Gold Mining Co. Ltd. had suffered from shortages of native labour and electric power. Uranium production at Virginia Orange Free State Gold Mining Co. Ltd. was expected to commence in 1955 and the Company should be the main supplier of sulphuric acid for uranium production in the Orange Free State. At the Merriespruit (Orange Free) State Gold Mining Co. Ltd. Mine the No. 1 shaft had reached 3,518 ft., the final depth being 4,600 ft.

BASE METAL INTERESTS

The Associated Manganese Mines of South Africa Ltd. due to transport restrictions had shipped less ore in 1951 than in 1950 and the dividend was consequently reduced but this position had recently improved. The profits of Consolidated Murchison (Transvaal) Goldfields & Development Co. Ltd. had fallen steeply with the price of antimony and the consequent restriction of production.

THE VOLTA RIVER ALUMINIUM SCHEME

This vast project, described by the London Press as the biggest colonial development of all time, was sponsored and financed by the Company since its inception in 1938 in collaboration with Mr. Duncan Rose and Mr. C. St. John Bird.

The British Government had that week issued a White Paper on the project and were setting up a commission to speed the £144,000,000 plan to create one of the world's major producers of aluminium. The project aimed at an ultimate aluminium output of 210,000 tons yearly and would result in a saving at present day prices of about \$150,000,000 per annum.

The result of the 14 years of endeavour is a tribute to the pioneering spirit of Johannesburg business enterprise.

INDUSTRIAL

Industrial interests had enjoyed improved conditions, three Companies paying maiden dividends and Anglo-Transvaal Industries Ltd. had resumed payment of its Ordinary dividend. Anglo-Alpha Cement Ltd. which produced 35 per cent of the Union output was still handicapped by the inadequate controlled price.

GOLD MINING INDUSTRY FINANCE

They were presently confronted with a very difficult financial period. Too many new gold mines had been established in too short a period. That was largely due to the post-war extensive drilling programme carried out in the Orange Free State over an area which had become attractive at the outbreak of the war when prospecting operations became restricted. It seemed paradoxical that the very success that had crowned their efforts towards the rapid proving of a large new goldfield in the Orange Free State which was necessary to replace the old mines, should recoil on them as an important cause of the present financial situation.

Over £100,000,000 had been invested in recent times in the large developing mines of the Orange Free State. In the face of that heavy drain on the flow of market money, the soundness of the present position was remarkable, and more especially so bearing in mind the adverse factors at the present time.

Generally the State was in a stage of over-rapid development with all its attendant difficulties including constantly rising costs. He believed that the courage and enterprise of investors in the mining industry would be rewarded. Gold and uranium were yardsticks of national wealth and an increase in the world price of gold could be expected in the not-too-distant future.

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GOLD FIELDS RHODESIAN DEVELOPMENT CO.

The Fortieth Annual Meeting of The Gold Fields Rhodesian Development Co. Ltd. was held on Wednesday last in London. **Mr. Robert Annan** (chairman) presided and following is an extract from his speech:

The Profit and Loss Account shows an increase in total revenue of £6,000 over the previous year, an increase of twice this amount in profit on Sales of Investments being offset by lower income from investments and profit on land sales. Net expenses show a small decrease but there was a loss of £25,000 on initial operations at Sebakwe on which I shall have more to say later. In accordance with our practice of writing down any investment the market price of which is below cost, we have felt it necessary to transfer £80,000 to depreciation reserve. This, with a net charge of approximately £19,000 for taxation, has absorbed the profit for the year and reduced the carry-forward from £31,000 to £4,500. The greater part of the depreciation arises from the fall in the price of our shares in Motapa. Your directors feel that they should continue the conservative policy of providing for depreciation below cost in the quoted price of individual holdings as it occurs and in consequence they are unable to recommend the payment of a dividend in respect of the past year.

The results of the company's operations in Southern Rhodesia in the past year have been disappointing. Land sales were confined to the disposal of the last of the Filabusi Group of farms, reducing our total land holdings by 4,874 acres to 40,459 acres. Since the end of the financial year, two stands in the centre of Salisbury have been sold at a substantial profit.

At Motapa, production was maintained but profits showed a serious decline owing to a further rise of 2s. per ton in working costs and to continued metallurgical difficulties. There have recently been some signs of improvement in the latter respect but we cannot yet feel that our difficulties have been solved and we are still awaiting delivery of some plant which is required. On the other hand, development of the mine has been showing better results.

At Sebakwe, development continued during the year. The first unit of the treatment plant began operations in June, 1951, and by August, 1952, had reached a capacity of 5,000 tons per month. Unfortunately we have again encountered difficulty in the treatment of the sulphide ores from this group. The scale of operations has been reduced and an intensive research into the metallurgical problems has been carried out. It now appears that we shall be able to make the recovery originally predicted but at an increased operating cost, but at the reduced scale of operations and following the collapse in the market for antimony concentrates we have not yet been able to bring operations to a profitable stage. The programme for the future development of this group is now under consideration by our consulting engineers and we may have to incur some further expenditure on this venture.

As you are aware the business of the Wanderer Consolidated Gold Mines Ltd., was placed in voluntary liquidation in November, 1951. Mining operations continued at a small profit until August 31 last, and the plant and other assets of the company are being realized. The prices realized up to the present have been better than estimated but it is not possible at this stage to predict the final result or how long it will take to complete. In the meantime, the liquidators are making a first distribution of 2s. per share and the final outcome may be somewhat better than predicted a year ago.

Turning now to our investments, we have a promising and well-spread list of holdings in dividend paying and developing mines.

In the Union of South Africa our interests in producing mines include Luipaards Vlei and Vogelstruisbult, both of which have been included in the scheme for the production of uranium, and West Witwatersrand Areas which can anticipate increasing returns from the operating companies formed on its property. We also have a substantial interest in the platinum industry through our holdings in the Union and Waterval companies, which have increased their dividends and have excellent prospects for the future.

Our interests in developing mines in the Union include West Driefontein, Doornfontein, Welkom, Harmony, and New Consolidated, Free State, Exploration Co.

West Driefontein is now producing and as full capacity is reached, promises to be an outstanding success. Reef development on Doornfontein has begun with encouraging results and production should start about the middle of next year.

In Australia we retain our interest in the Lake View and Star and Lake George companies.

In West Africa, our interests are confined to the high grade properties, Ashanti, Ariston, and Konongo, and now form a small proportion of our total investments.

The prospect for these investments is good and provided that we can overcome our present technical difficulties on our mining ventures in Southern Rhodesia we should be able to show better results in the near future.

The report and accounts were adopted.

CONSOLIDATED TIN MINES OF BURMA

The Twenty-Second Annual General Meeting of the Consolidated Tin Mines of Burma Ltd., was held on December 4, at Alderman's House, Bishopsgate, London, E.C.

Mr. W. J. C. Richards, chairman of the company, presided, and in the course of his speech said:

In my statement a year ago and in the report of the directors issued a month ago shareholders were informed of the lawlessness and armed banditry which have prevailed in the sector of Lower Burma in which our mines are situated. Unfortunately the situation has not improved and it will be readily understood that the company's operations have been unavoidably restricted. It has been impossible to carry out any mining operations during the year as the mining areas are under the control of insurgents. We have, however, retained a "foothold" in the Tavoy township where, under difficult conditions, the business of ore-buying and the separation of mixed concentrates has been maintained.

The group profit for the year, after taxation, although less than for the previous year is sufficient to enable the Board to recommend a dividend of 5 per cent. There can be very little satisfaction in these results when it is realized that illicit mining of your company's mines has been prevalent throughout the year with consequential damage to the properties and considerable depletion of ore reserves.

The ore purchasing business—which is now the sole source of revenue—has been conducted under hazardous conditions. The price demanded for ore takes no heed of the high cost of separating, bagging, freight, etc., and during the latter half of the year we encountered a falling market for both tin and wolfram. The restricted insurable risks at Tavoy to which I referred last year have become increasingly difficult to place and quite recently dacoities in Tavoy township have been frequent.

The transport route between Tavoy and the mines remains closed to the company's officials and, so long as the company's mining areas continue to be under the control of forces in opposition to the Burma Government, there can be no prospect of a fair return on the capital invested in our properties.

The most satisfactory feature in the accounts is the strong liquid position which has been built up during the past few years. It will be seen from the consolidated balance sheet that more than one-half of the issued share capital is represented by net liquid assets and, when a constructive policy is again justified, we are in a position again to deal with the task of rehabilitation. I believe such a time to be distant and although this can be no more than an opinion it is apparently also the opinion of the Finance Minister of the Government of the Union of Burma.

The report and accounts were adopted.

TEKKA LTD.

MR. STANLEY WICKETT'S STATEMENT

The Thirty-Second Ordinary General Meeting of Tekka Ltd. was held on December 1, 1952 at the Registered Office, Redruth.

Mr. Stanley Wickett (chairman) presided.

Before proceeding with the ordinary business the chairman referred to the loss sustained by the company since the close of the financial year by the death on May 15, 1952 of Mr. Harry Rich, who had been a director from the inception of the company in 1920. His services had been greatly valued, and the meeting stood in silence as a mark of respect.

The Report and Accounts for the year ended March 31, 1952, having been circulated for the prescribed time, were taken as read, as was also the chairman's Statement, circulated with the report and accounts, which was as follows:

The Accounts for the year ended March 31, 1952, show a profit of £33,39s as compared with £34,292 for the previous financial year. Provision for United Kingdom and Malayan taxation required £17,685, the sum of £11,067 having previously been paid to the Malayan Government in Royalty on tin ore, a total contribution to Government funds of £28,752. From recent pronouncements the Chancellor of the Exchequer appears to appreciate the uneconomic and discouraging magnitude of present taxation and it may be hoped that some reduction may result in the coming year.

Three interim dividends were paid to shareholders, a total of 5 per cent (1s. per share) for the financial year which absorbed, after taxation, £9,413. The sum of £3,042 was written off Capital Account and £5,000 was transferred to General Reserve, leaving a balance of £27,001 on Profit and Loss Account which the directors propose to carry forward to the current year.

I have to state that in common with other hydraulic mines in Perak no assessment of the company's claim for War Damage Compensation has yet been received from the Malayan Government. Expenditure by the company on Rehabilitation Account, £27,495, and the amount of the advance from the Malayan

Government outstanding, £19,219, have consequently again been carried forward in Suspense.

The Report of our general managers, Messrs. Osborne and Chappel, which is appended, gives particulars and comparative results at the mine. The yardage treated was practically the same as that treated during the previous year, a small reduction in output and considerable increase in the cost of production being offset by the higher price received for our product.

During the current financial year shareholders have been advised that the output for the first six months amounted to 55½ tons, a satisfactory increase over 43½ tons won during the previous comparable period and the general managers consider that prospects are favourable.

The free operation of the Singapore tin market again proved its value both to producers and consumers. In August, it was announced that the Reconstruction Finance Corporation would cease to be the sole buyer of tin in the United States of America and that the purchases of tin by the British Government to fulfil its obligations under the Anglo-American agreement of January, 1952, had been almost completed. This lead to a set-back for a short period, but apart from this the price level has remained remarkably steady in unstable world conditions.

It is my privilege to record our thanks to the general managers and the manager and staff at the mine for their splendid services in overcoming difficulties which were frequent during a period of intensive Communist activity in the district. It is much to be regretted that both the mine and Police Security Forces suffered casualties, but in successful actions notable losses were inflicted on the Terrorists. As the result of effective measures taken the latest reports have been encouraging with respect to improvement in local conditions.

The statement of accounts and balance sheet, together with the directors' report, were received and adopted.

W. E. SINCLAIR, M.I.M.M.

Consulting Mining Engineer

South & East Africa & Rhodesia

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(Incorporated in the Union of South Africa)

Extracted from the ANNUAL REPORT for the Year ended August 31, 1952

AUTHORIZED AND ISSUED CAPITAL
£385,000 in 385,000 Shares of £1 each

Net Profit for the year	£194,025
Balance unappropriated at August 31, 1951	140,821
Forfeited Dividends	36
Amount previously appropriated for capital expenditure now reversed	3,270

Making a total of	£338,752
This amount has been dealt with as follows:	

Taxation	£52,057
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Dividends declared during the year:

No. 91 of 1s. 9d. per share, and	119,432
No. 92 of 1s. 9d. per share	67,375

Leaving a balance unappropriated of	£219,320
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The coal despatched from the mine totalled 1,415,877 tons, an increase of 16,431 tons compared with the figure for the previous year.

Although output increased compared with the previous year, it was seriously restricted by the continued shortage of railway transport.

Contracts have been placed for the erection of a washing plant and ancillary equipment to handle the output from the Volkswaas Section. Not only will this enable the various coal seams to be exploited to the full, but also it will extend very materially the life of the mine. The company's capital commitments at the end of August, 1952, amounted to about £460,000 to be spread over a period of two years and it is proposed to finance this out of accumulated funds, profits and, if necessary, by means of temporary loan facilities. Meanwhile, it will therefore be necessary to restrict dividend distributions to the existing level.

The full Report and Accounts may be obtained from the London Secretaries, A. MOIR & CO., 4 London Wall Buildings, London, E.C.2.

Mining Matters

His Royal Highness The Duke of Edinburgh has graciously accepted election to Honorary Membership of the Institution of Mining and Metallurgy.

The Royal Society of Arts have announced that on Tuesday, December 9, at 5.15 p.m., a paper entitled "Australian Gold," by Mr. J. A. Dunn, will be read by Mr. G. Rudduck. Sir Selwyn-Clarke, Chairman, Commonwealth Section, will preside.

The Cornish Institute of Engineers have announced that the fourth general meeting will be held in the Lecture Theatre of the Camborne School of Mines on Friday, December 12, at 7.15 p.m., when a paper entitled "Reflections on a North American Journey" will be presented by Mr. K. A. Fern, of Cyanamid Products Ltd.

Mr. Fern has just returned from a visit to the United States and his paper will consist of some recent impressions of American mining practice.

G.E.C. Obtain Winding Engine Contract.—The General Electric Co., have announced that a contract has been placed with their Fraser & Chalmers Engineering Works for an electrically driven winding engine by the National Coal Board, South Western Division No. 2 Area.

This equipment is to replace the steam winding engine at the Glyncorrwg Colliery and when in operation will deal with 270 tons of coal per hour from a depth of 1,800 ft. The weight of coal lifted at each wind will be 6 tons.

The motor and switchgear for this engine are being provided from the G.E.C. factory at Witton.

A.B.T.R. Long-Life Conveyor Belt was recently taken out of service after carrying 4,000,000 tons of ore for Dorman Long & Co., Middlesbrough. It was a 54 in. x 10 ply belt, operating between Primary and Secondary Crushers.

Essex Metallurgical have announced that they now have representatives on the Continent and are able to quote for the sampling and check-weighing of parcels of minerals, residues and scrap, etc., at Antwerp and Rotterdam.



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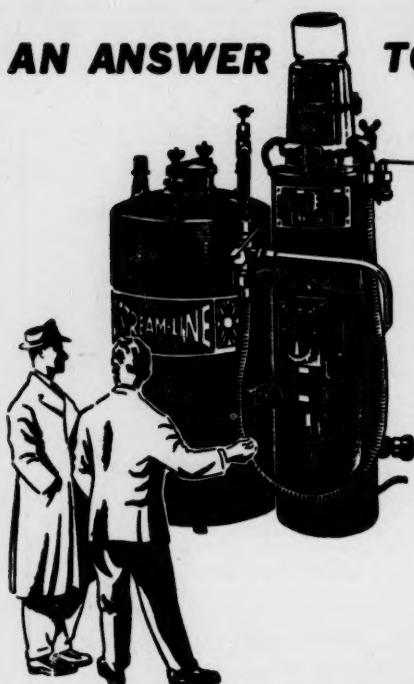
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